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An exploratory study

Master's thesis

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Master's thesis in Language Studies with Teacher Education
Supervisor: Anne Dahl
May 2022

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Abstract

This thesis is concerned with metalinguistic awareness (MLA) and metalinguistic knowledge (MLK). On the basis of a literature review on the topic, the empirical study explored four research questions: (1) How may the underlying concepts MLA and MLK be measured as two distinct factors? (2) To what degree are MLA and MLK related constructs? (3) To what degree, if at all, do metalinguistic abilities, possibly clustered as MLA and MLK, correlate with L2 English proficiency in the participant group of the present study? (4) Which background variables, if any, correlate with metalinguistic abilities, possibly clustered as MLA and MLK, in the participant group of the present study?

The study was conducted using an online survey consisting of a test of L2 English proficiency, 19 metalinguistic tests and a background questionnaire. Due to the length of the survey, it was divided into two sections where continuation to part 2 was optional at the end of part 1. Participants were adult speakers of L1 Norwegian and L2 English. The research data was analysed using factor and correlation analyses. Due to low sample sizes and reliability scores for the various metalinguistic tests, the results are merely tentative and the discussion exploratory.

The results indicate that MLA and MLK may be distinct, but related constructs, and that they may be measurable using a combination of metalinguistuc tests. There is, however, a great need for further development and piloting of the metalinguistic tests in order to secure high reliability of the measures. The results also indicate that MLA and MLK may be language-general concepts. Contrary to findings in extant research, the present analysis did not uncover a relation between MLK and L2 proficiency. Instead, correlations between MLA tests, particularly tests of morphological awareness, and L2 proficiency were found. Whether these results stem from differences in the measures employed or the linguistic context of the population investigated is one of several questions which require further investigation.

Sammendrag

Denne oppgaven handler om metalingvistisk bevissthet (MLA) og metalingvistisk kunnskap (MLK). Basert på undersøkelsen av den eksisterende litteraturen om temaet utforsket den empiriske studien fire forskningsspørsmål: (1) Hvordan kan de underliggende konstruktene MLA og MLK måles som to distinkte faktorer? (2) I hvilken grad er MLA og MLK relaterte konstrukt? (3) I hvilken grad, om noe, korrelerer metalingvistiske ferdigheter, muligens sammensatt som MLA og MLK, med andrespråksferdigheter i engelsk i denne studiens deltakergruppe? (4) Hvilke bakgrunnsfaktorer, om noen, korrelerer med metalingvistiske ferdigheter, muligens sammensatt som MLA og MLK, i denne studiens deltakergruppe?

Studien ble gjennomført ved hjelp av en digital spørreundersøkelse på nett som besto av en test av andrespråksferdigheter i engelsk, 19 metalingvistiske tester og en seksjon med bakgrunnsspørsmål. På grunn av dens lengde ble spørreundersøkelsen delt inn i to deler. Deltakelse i del 2 var valgfritt etter deltakelse i del 1. Deltakerne var voksne med norsk som førstespråk og engelsk som andrespråk. Forskningsdataene ble analysert ved bruk av faktor- og korrelasjonsanalyser. På grunn av lavt deltakerantall og lave reliabilitetsverdier for de ulike metalingvistiske testene er resultatene kun å regne som foreløpige, og diskusjonen kun utforskende.

Resultatene indikerer at MLA og MLK kan være distinkte, men relaterte konstrukt, og at de kan være målbare ved bruk av en kombinasjon av metalingvistiske tester. Det er imidlertid stort behov for videre utvikling og pilotering av de metalingvistiske testene for å sikre høy reliabilitet. Resultatene indikerer også at MLA og MLK kan være språk-generelle konstrukt. I motsetning til tidligere forskning ble det ikke funnet sammenheng mellom MLK og andrespråksferdigheter. Det ble imidlertid funnet korrelasjoner mellom andrespråksferdigheter og MLA-tester, spesielt tester av morfologisk bevissthet. Om disse resultatene stammer fra forskjeller i design av testene som ble brukt eller den undersøkte populasjonens språkkontekst er et av flere spørsmål som krever videre undersøkelser.

Acknowledgements

Thank you to my supervisor, Anne Dahl. Your enthusiasm and thorough guidance have made this project a joy to realize.

Thank you also to Luigi, Hanna, my parents and my friends for supporting me through ups and downs in this process, from piloting my very long survey draft to providing spaces of calm and laughter amid the slight chaos life threw into the mix.

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Abbreviations

MLA	Metalinguistic awareness
MLK	Metalinguistic knowledge
SLA	Second language acquisition
L1	First language
L2	Second language
P1	Part 1 of the survey
P2	Part 2 of the survey
FA	Factor analysis
G	General
N	Norwegian
E	English
FMLK	Factor of metalinguistic knowledge
FMA	Factor of morphological awareness
FPA	Factor of phonological awareness
FMG	Factor of morphological awareness and grammaticality judgement

1 Introduction

Acquiring a language is a complex process involving several moving parts, many of which are not yet fully understood in terms of scope, relation and importance. Two such moving parts are theorized to be metalinguistic awareness (MLA) and metalinguistic knowledge (MLK). There is still no consensus in the literature in terms of how to define these two concepts, how to measure them empirically and how they may relate to second language acquisition (SLA) and proficiency.

This thesis is concerned with potential definitions and empirical tests of MLA and MLK, and how these concepts potentially relate to the proficiency level of English as a second language (L2) among adults with Norwegian as or among their first language(s) (L1). As a thorough investigation is far outside of the scope of this thesis, the study conducted was an exploratory venture into the field for the purpose of identifying potential valuable avenues for further research. The literature reviewed includes both theoretical and empirical approaches, and discusses the potential definitions of MLA and MLK, as well as the potential ties they might have to other linguistic concepts and experiences, such as language aptitude, bilingualism and formal language learning. The empirical section of the study draws on a multitude of sources in order to explore the potential nature of empirical MLA and MLK testing.

1.1 Terminology clarification

Throughout the extant literature, the different concepts related to linguistic knowledge are ascribed many names, some seemingly overlapping. This section provides a short introduction to the key terminology that appears throughout this thesis.

Second language, or L2, is in the present thesis used as a term for all languages learnt after early childhood, meaning that no distinction is made between the first, second, third, and so on, L2 acquired. This is due to the limited scope of the present thesis; the acquisitional order of multilingual participants' L2s was not a topic of investigation since only one L2 was investigated directly in the study.

The term implicit linguistic knowledge, sometimes simply referred to as linguistic knowledge, arguably overlaps with the terms tacit knowledge and linguistic competence, which denote the procedural language knowledge humans acquire and utilize unconsciously, making us able to produce and comprehend language as naturally as we do (Tunmer & Herriman, 1984, p. 13). In this thesis, implicit linguistic knowledge is the term used.

MLK in this thesis overlaps with what some scholars refer to as explicit language knowledge. This is declarative knowledge about language that requires awareness and attention-directed processing to develop and access (Ellis, 2004, pp. 235-237). Since this is explicit knowledge about implicit linguistic knowledge, simply put, knowledge about knowledge, it is referred to as *meta*linguistic.

Terminology related to MLA, i.e., the ability to direct attention or awareness to the form and function of language and reflect upon it, also varies somewhat. In some of the literature, the term language awareness is used. This is considered to be a broader term,

under which MLA can be argued to belong (Jessner, 2006, p. 42). MLA may also at times be referred to simply as linguistic awareness in the literature, but only MLA will be used in this thesis.

Lastly, since the concepts of MLA and MLK are still somewhat convoluted and the concept definitions vary in the literature, the term metalinguistic abilities is used throughout the thesis as a general term that may be related to either MLK or MLA, and that may be measured empirically by using metalinguistic tests.

2 Theoretical background

In order to establish a theoretical background for the present study, this chapter is a review of extant literature on the topic. The below subchapters outline various definitions of MLA and MLK, and possible links between MLA, MLK and other language concepts and competences. Lastly, a closer inspection is given to prior empirical research on the intersections of MLA, MLK and L2 proficiency.

2.1 Exploring MLK and MLA

This section aims to explore the different existing definitions of the two concepts MLA and MLK. The first two subsections outline various definitions of MLK and MLA respectively. The relationship between the two is then investigated, and lastly, working definitions for use in the present thesis are settled.

2.1.1 Metalinguistic knowledge

As a starting point for understanding MLK, Ellis (2004, pp. 235-240) provides some core characteristics: Explicit language knowledge, or MLK in the present thesis, is, among other things, conscious, declarative, potentially verbalizable, learnable and accessible through controlled processing. Beyond this, there are seemingly two main approaches to defining MLK. The first one describes MLK as a general concept, not tied to any specific language. The other one does the opposite, describing MLK as closely linked to the specific languages one knows. In empirical research employing the latter interpretation, it varies whether researchers measure MLK in relation to participants' L1 or L2, the latter being the most prevalent choice (e.g., Alderson et al., 1997; Elder & Manwaring, 2004; Roehr, 2008).

Bialystok (2001, p. 123) represents the first interpretation of MLK, arguing that MLK, in order to be distinct from linguistic knowledge, must be composed of more general and abstract knowledge of language, and that it is not solely tied the grammar of a specific language. Examples of this abstract MLK mentioned by Bialystok (2001, p. 124) are productive morphology, i.e., the understanding of the fact that affixes modify words in different ways, and canonical word order, i.e., the understanding of the fact that changing the order in which words are placed in a sentence also changes the meaning of that sentence. MLK, in this sense, refers to an understanding of language and its functions in a general manner.

The more frequent understanding is that of MLK as explicit representation of implicit knowledge about a specific language. Roehr (2008, p. 179) defined MLK simply as "explicit knowledge about language", meaning that implicit language knowledge is made explicit and declarative; it can be brought into awareness and may be expressed verbally. Roehr (2008, p. 179) further specified that MLK is explicit knowledge of a language's syntactic, morphological, lexical, pragmatic and phonological features, as well as explicit knowledge of categories and the way they relate to each other. Falk et al. (2015, p. 227) defined MLK similarly, as "the conscious knowledge of the linguistic rules of a particular language".

MLK has been operationalized and measures in several ways, the most common one being the ability to correct grammatical errors in sentences and explain the rules behind them, sometimes also involving identification and description of the error (e.g., Alderson et al., 1997; Elder & Manwaring, 2004; Roehr, 2008; Sorace, 1985). Roehr (2008, p. 193) also included language analytic ability as part of MLK, which was tested using a measure based on the Modern Languages Aptitude Test (MLAT) IV, also known as the Words in Sentences test. Language analytic ability is traditionally viewed as part of language aptitude, which is further discussed in section 2.2.1. Alderson et al. (1997, p. 99) and Elder and Manwaring (2004, pp. 149-153) implemented tests of participants' knowledge and understanding of metalinguistic terminology, such as grammatical categories and functions, as part of their measures of MLK.

Sorace (1985, pp. 248-249) argued that the ability to verbalize grammatical rules is particularly advanced and is the last stage of the development of MLK. This is supported by the findings of Green and Hecht (1992) and Elder and Manwaring (2004), where participants did far better on error correction than rule explanation. One of the explanations Elder and Manwaring (2004, p. 159) proposed for this finding was that rule explanation relies on MLK alone, while for error correction, participants might not require MLK, but rather primarily draw on implicit language knowledge, which is more easily and automatically accessible than explicit knowledge like MLK (Ellis, 2004, p. 237).

In the exploratory spirit of this thesis, it is arguably beneficial to approach and define concepts broadly. As previously mentioned, Bialystok (2001) argues for the necessity to make greater abstractions from individual languages to see MLK as something separate from linguistic knowledge. However, in the other interpretation more frequently presented (e.g. Elder & Manwaring, 2004; Falk et al., 2015; Roehr, 2008; Sorace, 1985), MLK is the explicit representation and understanding of one's implicit knowledge of specific languages. Although these two interpretations differ, they are arguably not contradicting, and so they can both be implemented in a broad definition of MLK. Also worth noting, although outside of the scope of this thesis, is that although one's MLK might be tied to a specific language, it may still aid in acquisition of new languages (see e.g., Falk et al., 2015).

2.1.2 Metalinguistic awareness

Tunmer and Herriman (1984, p. 12) described MLA as "the ability to reflect upon and manipulate the structural features of spoken language, treating language itself as an object of thought". As an illustration of this, they mentioned Vygotsky's (1962, as cited in Tunmer & Herriman, 1984, p. 17) "glass theory", an explanation of language as a window through which one sees the world. As a young child, one would not immediately understand that it is the window that allows the perception of the world on the other side. However, at some point the child will become aware of this barrier and will be able to reflect upon its function, which is arguably analogous to what we could call MLA, i.e., awareness of the nature and function of language. Tunmer and Herriman (1984, p. 12) emphasized that MLA does not require the ability to put into words and know the terms for the awareness one has, meaning that metalanguage, while being closely related to it, is not a prerequisite of MLA.

Different scholars have proposed different ways that MLA may be composed of several sub-competences. Nesdale and Tunmer (1984), clarifying that this was not an exhaustive list, proposed that MLA can be further broken down into "awareness of phonemes,

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awareness of words, awareness of the structural representations of sentences, and awareness of interrelationships among propositions" (p. 40). Other categorizations proposed are MLA as consisting of phonological, morphological and syntactic awareness (Reder et al., 2013, p. 687) and MLA as consisting of phonological, orthographic and morphological awareness (Yeon et al., 2017, p. 431).

In relation to MLA, Bialystok (2001, pp. 126-127) discussed consciousness and awareness and concluded that attention must be involved in MLA, specifically in the sense that MLA is not a constant state, but rather an ability to momentarily focus attention on language. In other words, MLA is at play when one goes from simply producing and comprehending language, i.e., using implicit linguistic knowledge, to actively focusing attention on the form and structure of the language, employing linguistic awareness on a meta-level.

Jessner (2008, p. 277) described MLA as "the ability to focus on linguistic form and to switch focus between form and meaning" and the ability to "categorize words into parts of speech; switch focus between form, function and meaning; and explain why a word has a particular function". Jessner (2008, p. 278) further argues that metalanguage is "the most explicit expression of metalinguistic awareness". This is seemingly at odds with Tunmer and Herriman's (1984) argument that metalanguage is not a necessity for MLA. This is further discussed in section 2.1.3.

Another term worth noting, mentioned by Tunmer and Herriman (1984, p. 14), is linguistic intuition, which was described as judgements about language, usually made without any explicit understanding of why the judgements are made as they are. This arguably coincides with the definition of MLA as attention to language without the necessity of explicit expression of knowledge or understanding. Tunmer and Herriman (1984, p. 14) were hesitant to equate linguistic intuition with metalinguistic abilities, particularly in children, which was the population group in focus in their discussion, arguing that metalinguistic abilities may exist independently of the ability to express linguistic intuitions. However, their argument being based primarily on children means that other connections might exist in the adult population. Additionally, for exploratory purposes, the present thesis seeks to establish broad definitions of the core concepts under investigation. Consequently, the arguably analogous definitions of linguistic intuition and MLA are interpreted as grounds for including linguistic intuition into the broad concept definition of MLA in the present thesis.

How MLA is linked to implicit linguistic knowledge is still unclear. Drawing possible links between enhanced MLA and child bilingualism, Bialystok (1991, p. 113) claimed that MLA is a language-general concept, not strictly related to the particular languages one knows. Ellis (2004, pp. 240-241) tied language awareness to both language in general and specific languages, but argued that the everyday person most likely primarily develops MLA tied to the specific languages they know. MLA has also been argued to be a skill that is dynamic and developing. Jessner (2006, p. 42) argued that MLA is more relevant for bi- and multilinguals (see section 2.2.2) than monolinguals, but that also monolinguals who work with language seem to develop heightened levels of MLA, indicating that MLA is shaped by exposure to and experience with language in all forms, both L1s and L2s.

2.1.3 Connections between MLA and MLK
In the literature presented above, there is little focus on the possible links between MLA and MLK, and the two concepts are at times described in overlapping manners. However,

taking multiple perspectives into consideration, a possible relation between the two emerges. Tunmer and Herriman (1984, p. 12) argued that metalanguage is not a prerequisite of MLA. Although it may not be a prerequisite, it could be seen as a result of MLA, or a possible expression of it, as Jessner (2008, p. 278) argues that metalanguage is the most explicit expression of MLA. Furthermore, metalanguage is also a tool for expressing MLK. Consequently, MLA is arguably a prerequisite for the development and expression of MLK, as MLA is the ability to focus on the factors of language which MLK may consist of. The two concepts differ in the sense that MLA is a skill of attention, while MLK is explicit knowledge that may or may not be expressed, and when it is, it coincides with MLA.

2.1.4 Working definitions

This section presents the definitions of MLK and MLA that are employed throughout the present thesis. These are not established consensus definitions, but rather working definitions developed for this thesis. The working definitions are based on various existing definitions, described in the literature presented above.

MLK is the explicit knowledge one has about language. This may include both language-general and language-specific knowledge. An example of language-specific MLK could be the morphosyntactic rules of the languages one knows. The use of the term language-general does not mean universal, as there are very few features of language that are truly universal across all languages. Rather, language-general is in this thesis used to refer to language features that either exist in all languages one knows, or exist in none of the languages one knows. What makes MLK separate from implicit linguistic knowledge is its explicit and declarative nature, and the potential for vocalising the MLK using metalanguage. For something to become explicit, attention is required, which brings us to the next concept, MLA.

MLA is the ability to focus one's attention on language itself, i.e., not its content, but its form and function. MLA does not require explicit expression of knowledge, but is rather, in its simplest form, the ability to become aware of and reflect upon language. However, the attention to language that MLA provides can also lead to explicit knowledge formulation and vocalized expression of this knowledge, i.e., MLK. As with MLK, MLA may be both language-general, as defined above, and language-specific.

2.2 MLA and MLK in relation to other linguistic factors

Concepts like MLA and MLK do not exist and develop in a vacuum. The following subsections explore extant literature that has linked MLA and MLK to language aptitude, bilingualism and formal language instruction.

2.2.1 The relationship of MLA and MLK to language aptitude

Language aptitude can be defined as "a state of readiness of individuals which provides them with a certain capacity and facility for learning foreign languages" (Carroll, 1962, 1990, as cited in Ameringer et al., 2018, p. 7). It was initially defined as an innate trait that is stable over time, but more recent research has found it to be somewhat more dynamic and susceptible to evolution than previously thought (Ameringer et al., 2018, p. 7). Language aptitude is argued to consist of four main components: Phonetic coding ability, grammatical sensitivity, inductive language learning ability and rote learning ability (Carroll, 1958, 1962, 1973, as cited in Ameringer et al., 2018, p. 8). According to

Skehan (1986, 1991, 2002, as cited in Ameringer et al., 2018, p. 8), two of the components, grammatical sensitivity and inductive language learning, can be grouped together as passive and active forms of the same component called language analytic ability. Other approaches to language aptitude have also been proposed, but expanding on these is outside of the scope of this thesis.

According to Ellis (2004, p. 251), language aptitude includes, among a variety of aspects, "[t]he ability to reflect on language and extract abstract information", which is arguably closely related to MLA and MLK. Jessner (2006, p. 68) discussed the relatedness of MLA and language aptitude in relation to bi- and multilingualism, and highlighted the difficulty in distinctly separating MLA and language aptitude or indicating causality in potential interaction between them. Furthermore, she argued that as the number of language systems, i.e., the number of languages one knows, increases, it becomes increasingly difficult to understand how language aptitude and MLA each individually contribute to the language acquisition process. Roehr-Brackin and Tellier (2019, p. 1125) also found indications that MLA and language aptitude may be overlapping constructs, at least in young learners. Roehr-Brackin and Tellier (2019, p. 1126) additionally argued that MLA and language aptitude might exist in a mutually influential relationship as dynamically growing constructs in young L2 learners. However, the test used to assess MLA measured knowledge about various language domains, including metalinguistic terminology (Roehr-Brackin & Tellier, 2019, p. 1119). Consequently, in light of the definitions of MLA and MLK in the present thesis, these findings arguably indicate a possible connection between language aptitude and both MLA and MLK.

Alderson et al. (1997, p. 98) argued that the aptitude components that together make up language analytic ability are closely related to what they called language awareness, a broader concept in which MLA may be included. However, their empirical findings, which did not focus on language awareness, but rather MLK, were deemed ambiguous regarding correlations between MLK, aptitude and proficiency; a moderate correlation was found between MLK and grammatical sensitivity as measured by the MLAT IV, while there was no correlation between MLK and the test of inductive language learning (Alderson et al., 1997, pp. 116-118).

By employing principal components analysis, Roehr (2008, pp. 186-187) found that language analytic ability was intercorrelated with the other measure of MLK in her study, which was the ability to correct, describe and explain grammatical errors. The test of language analytic ability was based on MLAT IV. This is arguably a narrow operationalization of language analytic ability, as this subtest measures grammatical sensitivity, but not inductive language learning. Although Carroll (1965, pp. 128-130) suggested that inductive language learning was one of four parts of language aptitude, he also acknowledged that none of the MLAT subtests measure inductive language learning directly. Tests that do claim to measure inductive language learning have later been developed separately from the MLAT, like the one employed by Alderson et al. (1997, p. 102). Since there is no test of inductive language learning in Roehr's (2008) study, a more careful conclusion would arguably be that only grammatical sensitivity is part of the same construct as MLK, not the larger concept of language analytic ability. This also fits with the results of Alderson et al. (1997, p. 116), which showed that the MLAT IV, testing grammatical sensitivity, moderately correlated with MLK, while the inductive language learning test did not. In a later study, Roehr and Gánem-Gutiérrez (2009, p. 175) further argued that MLK and language analytic ability, or rather

grammatical sensitivity according to the current discussion, are related, but distinguishable concepts, since in principal components analysis the L1 MLAT IV test and the L2 MLK subtest based on the MLAT IV loaded on different components in their analysis.

Extant literature indicates that both MLK and MLA might be closely linked to language aptitude, particularly through the component of grammatical sensitivity. Recent research also indicates that metalinguistic abilities and language aptitude might be dynamically co-developing in young L2 learners (Roehr-Brackin & Tellier, 2019).

2.2.2 The relationship of MLA and MLK to bilingualism and formal instruction

Although there is no clear consensus on the matter of bilingualism and its relation to cognitive abilities, many researchers argue that bilingualism enhances cognitive abilities, and one such ability that is indicated to be closely related to and enhanced by bilingualism is MLA (Murphy et al., 2020, pp. 6, 131). Jessner (2008, p. 277) argued that bi- and multilinguals consistently display enhanced levels of MLA compared to monolinguals, even monolingual professionals who work with language, and referenced Vygotsky's (1986, as cited in Jessner, 2008, p. 277) argument that learning a foreign language enhances children's knowledge of their L1. Reder et al. (2013) found that children who start acquiring an L2 at an early stage show increased L1 MLA compared to their monolingual peers, particularly in relation to features that are different in the L1 and L2, indicating that MLA develops with exposure to and acquisition of different languages. Regarding MLK, Roehr and Gánem-Gutiérrez (2009, p. 174) argue that formal study of the L2 as well as cumulative years of study of other L2s are significant predictors of development of L2 MLK.

Early bilinguals, i.e., people who have two L1s, are also argued to have an advantage in developing MLA and MLK. Thomas (1988, p. 236) argued that early bilinguals have an advantage in acquisition of their first L2 compared to monolinguals' acquisition of their first L2. Furthermore, she argued that bilinguals who have had at least two years of formal training in their second L1, referred to as biliterate bilinguals in Thomas' (1988) study, have a greater advantage than so-called monoliterate bilinguals, who have acquired their second L1 only informally. This latter advantage, she concluded, is due to enhanced MLA in the speakers with more formal language training. Thomas' (1988) definitions of MLA were somewhat different from the definitions employed in the present thesis, as MLA was described as both "conscious knowledge of the rules and forms of language" (p. 236) and as "sensitivity to language as a system" (p. 240). These descriptions correspond to MLK and MLA respectively as defined in the present thesis. It is important to note that the ascription of a biliterate language learning advantage to increased MLA/MLK is not an empirically supported one in Thomas' (1988) study, but rather a theoretical inference, as only proficiency was tested, not MLA or MLK itself.

Although Bokmål and Nynorsk, the two standard written varieties of Norwegian, are two varieties of the same language, they are nevertheless, as Vangsnes and Söderlund (2015, pp. 108-109) argued, different language systems, and cognitive advantages usually tied to bilingualism may be found in bidialectally literate Norwegian pupils. This was uncovered by Vangsnes et al. (2015) by investigating the results in national tests of pupils across Norway. Their results indicated that when accounting for socioeconomic status (SES), municipalities with a majority of pupils using the minority written variety,

Nynorsk, as their primary written language performed above expectations (Vangsnes et al., 2015, p. 355). This might be assumed to be an effect of bidialectal literacy because Nynorsk writers are exposed to Bokmål to a much larger degree than Bokmål writers are exposed to Nynorsk, and so Nynorsk users are expected to have a higher biliterate competence than Bokmål users (Vangsnes et al., 2015, p. 350). Vangsnes and Söderlund (2015, pp. 103-104) included a short explanation of possible cognitive advantages of bilingualism, including heightened metalinguistic competence, in their chapter about the possible bidialectal literacy advantage. Furthermore, they emphasized formal literacy training in both written varieties as a positive factor for future language acquisition. It is worth noting that Vangsnes and Söderlund (2015, p. 117) hesitated to declare the relationship between bidialectal literacy and national test performance a causative one, as other factors could have also been at play, but it was nevertheless an interesting correlation. In further support of a possible bidialectal advantage, Havas and Vulchanova (2018, pp. 67, 70) found indications of positive impacts of balanced Bokmål-Nynorsk competence on L2 processing, further indicating that this form of bidialectal literacy may be part of the complex set of factors that influence SLA.

Briefly summarized, there are indications in extant literature of bilingualism correlating with enhanced MLA and MLK. This applies to both early and late bilinguals, meaning both speakers with two L1s and speakers with one or more L2s. These possible bilingual advantages are additionally indicated to be further enhanced by formal instruction in the additional language, whether that be the additional L1 or the L2(s).

2.3 Prior research on MLK, MLA and L2 proficiency

In this section, prior empirical research relevant to the overarching topic of this thesis, namely the relation between MLA and MLK on the one hand and L2 proficiency on the other, is presented. It is important to note that constructs have been operationalized differently in different studies, which may in turn be a part of the explanation for variation in results.

Sorace (1985) examined L2 MLK in relation to L2 Italian proficiency in L1 English speakers. The participants were all university students, and they were grouped into beginner and intermediate learners of the L2. MLK was operationalized as the ability to identify, correct and explain grammatical errors in sentences. Results showed that metalinguistic abilities increased with proficiency, but this was only found to be statistically significant in the group of intermediate level learners (Sorace, 1985, p. 247). Three developmental steps were defined based on the MLK test used: (1) inability to identify errors, (2) identification and correction of grammatical errors, and (3) explanation of the grammatical rules violated (Sorace, 1985, pp. 248-249). Explanation of grammatical rules was, according to the results, particularly difficult.

Alderson et al. (1997) investigated the relationship between MLK, language aptitude and language proficiency in L1 English first year university students of L2 French. Tests of MLK were executed in both the participants' L1 and L2, and were further divided into two sections: (1) ability to identify parts of speech as belonging to certain word classes and phrase functions, and (2) ability to correct and explain grammatical errors in sentences (Alderson et al., 1997, p. 99). Results showed low correlation between MLK and L2 proficiency, and the variation and weakness of the correlations between the different tests used, in addition to results from factor analyses, lead to a conclusion that MLK and L2 proficiency were relatively unrelated (Alderson et al., 1997, pp. 112-115).

Renou (2001) measured "conscious knowledge of the formal aspects of the target language" (p. 248), referring to this construct as MLA. This definition is closer to what the present thesis defines as MLK, and so the term MLK will be used here instead. L2 MLK was compared to L2 French proficiency in L1 English speaking university students. The findings were that L2 proficiency scores did correlate significantly with MLK scores, operationalized as the ability to identify and correct errors in sentences, and explain the rules violated (Renou, 2001, pp. 256, 259). The tests were performed both in writing and orally. Additionally, the participants were divided into two groups depending on whether their L2 learning had been grammar or communication focused, and when looking at the two groups individually, only the grammar group had significantly correlating MLK and proficiency scores; the correlation was not significant for the communicative group (Renou, 2001, p. 257).

Perales and Cenoz (2002) investigated the acquisition of L2 Basque by adult L1 Spanish speakers in relation to MLA and a variety of background and psychological factors. Whether MLA was measured in relation to participants' L1 or L2 was not specified. MLA was measured in two parts. The first contained the MLAT IV test, measuring grammatical sensitivity, and tests on synonyms, comprehension and acceptability. The other part tested participants' ability to explain their answers given in the first part. Compared to the definitions in the present thesis, MLA is used broadly by Perales and Cenoz (2002, p. 5), as MLAT IV is tied to MLK in other literature, and the ability to explain one's answers to linguistic tasks also indicate the involvement of MLK as defined in the present thesis. Results indicated that metalinguistic abilities, particularly the ability to explain one's answers to the first part of the MLA test, were the variables most strongly correlated with L2 proficiency, correlating weakly to moderately with L2 oral production, writing and teacher grades.

Elder and Manwaring (2004) investigated L2 MLK in relation to L2 Chinese proficiency. Participants' L1s varied, but the majority were L1 English speakers. The MLK test consisted of three sections, namely grammatical terminology identification, error correction and rule explanation. There were two participant groups, namely first-year university students who started learning their L2 in secondary school, and second-year university students who started learning it in university. Despite the different onset time and duration of L2 acquisition, the competence of the groups was argued to be comparable (Elder & Manwaring, 2004, p. 148). MLK was found to correlate significantly with L2 proficiency in the university onset group, but weaker and more variably in the secondary school onset group. Correlations were also stronger between MLK and measures of reading and writing than measures of listening and speaking (Elder & Manwaring, 2004, pp. 158-159).

Roehr (2008) studied the relationship between L2 MLK and L2 German proficiency in L1 English speaking university students. MLK was operationalized both as the ability to correct, describe and explain grammatical errors and as the ability to identify the grammatical roles of parts of sentences. This latter measure was argued by Roehr (2008, p. 178) to measure language analytic ability, but in the present thesis, based on the definition of language aptitude and MLAT by Carroll (1965), it is argued to more narrowly measure grammatical sensitivity. Roehr's (2008) results showed relatively strong correlations between the measures of MLK and L2 proficiency. The strong correlations were suggested to be partly due to the narrow scope of the L2 proficiency test and its similarity to the first MLK test, where participants corrected, described and explained

grammatical errors. The second MLK test, investigating ability to identify the grammatical roles of words, did not correlate as strongly with L2 proficiency, and Roehr (2008, pp. 187-188) argued that this might be a result of less overlap between the two tests.

Reder et al. (2013) investigated the relationship between L1 MLA and bilingualism in children, comparing a monolingual group to a group of bilinguals with an early onset of L2 acquisition. All participants were L1 French speakers, and the bilingual group were learners of L2 German. MLA was operationalized as phonological, morphological and syntactic awareness. The results of Reder et al. (2013) suggested that differences in language characteristics between an L1 and an L2 determine in which areas bilinguals develop increased MLA; compared to monolinguals, bilingual participants showed increased awareness of features that were different between their L1 and L2, but not of features that were the same or largely similar (Reder et al., 2013, p. 699).

Yeon et al. (2017) studied the relationship between L1 Korean MLA and L2 English spelling development. MLA was operationalized as phonological, orthographic and morphological awareness. Participants were L1 Korean speaking children learning L2 English (Yeon et al., 2017, p. 434). The study found that the overall measure of L1 MLA significantly correlated with L2 spelling development (Yeon et al., 2017, p. 443). When investigated individually, L1 phonological and morphological awareness were each significantly correlated with L2 spelling development, while L1 orthographic awareness was not.

To summarize, most extant research has had similar research foci, and several gaps and subsequent needs for further research have been identified. Results regarding the relatedness of MLK and L2 proficiency in extant research are fairly similar. All of the above studies that measured L2 MLK alone (i.e., Elder & Manwaring, 2004; Renou, 2001; Roehr, 2008; Sorace, 1985) found that it correlates with L2 proficiency to some degree. The one study that additionally investigated MLK in relation to the L1, by Alderson et al. (1997), found ambiguous results, and hence did not conclude that there is any relationship between MLK as measured in both L1 and L2, and L2 proficiency. Perales and Cenoz (2002) found correlations between L2 proficiency and metalinguistic abilities related to both MLK and MLA as defined in the present thesis. MLA as defined in the present thesis is to a lesser extent represented in the empirically based literature, especially in relation to L2 proficiency. The two studies referenced here, by Reder et al. (2013) and Yeon et al. (2017), investigate the MLA and L2 proficiency relation in child participants. Adults have had more language exposure and experience than children, and so results from Reder et al. (2013) and Yeon et al. (2017) cannot be assumed to be generalisable to all age groups. Consequently, there still appears to be a need for further research on the relation between MLA and L2 proficiency in adults. In terms of both MLA and MLK, there is also a gap in the literature in terms of testing these concepts in relation to both L1 and L2. Lastly, the definitions of MLK and MLA vary, but none of the reviewed empirical research has investigated whether these concepts are separate or the same, related or unrelated.

3 Methods

After a brief presentation of the research questions of this study, this section presents a description of the participants and their recruitment, the tests used in the survey, and the data coding performed prior to statistical analysis.

3.1 Research questions

RQ1: How may the underlying concepts MLA and MLK be measured as two distinct factors?

RQ2: To what degree are MLA and MLK related constructs?

RQ3: To what degree, if at all, do metalinguistic abilities, possibly clustered as MLA and MLK, correlate with L2 English proficiency in the participant group of the present study?

RQ4: Which background variables, if any, correlate with metalinguistic abilities, possibly clustered as MLA and MLK, in the participant group of the present study?

3.2 Participants

Participants were recruited through personal networks. A link to the survey with an invitation to participate was shared both in direct communication and through open sharing on social media. Several people shared the invitation with their own personal networks, and so the full scope of the recruitment is unknown. The information letter presented to participants at the start of the survey can be found in Appendix M.

The survey consisted of two parts (see section 3.3), and the total number of respondents was 59 for part 1 (P1). Forty of these participants also responded to part 2 (P2) of the survey. However, some participants were excluded as they did not fit the criteria of the study. Firstly, Norwegian had to be one of the participants' L1s, and English could not be one of their L1s. Based on this, four participants were excluded due to reporting English as one of their L1s or reporting only 'other language(s) than Norwegian and English' as their L1. Participants with additional L1s to Norwegian, other than English, were included. Which languages these were was not inquired about. Secondly, this study was concerned with participants with assumed normal language development, and for this reason, nine participants were excluded due to reporting that they had learning disabilities or diagnoses that might have affected their language learning. After exclusion, the number of participants for P1 was 46 and for P2, it was 31.

An overview of the numerical variables describing the participants of P1 can be seen in table 1. 69.6% of participants were women and 30.4% were men. Two participants had one or more L1s in addition to Norwegian. 11% reported Nynorsk as their written variety, 89% reported Bokmål. 84.8% of participants reported learning one or more L2s formally in addition to English. The most common ones were German (N = 23), French (N = 14), Spanish (N = 10) and Russian (N = 3). A range of other European and non-European languages (e.g., Italian, Chinese, Sámi, Swahili) were reported by one participant each. 19.6% of participants reported being able to speak one other L2 in addition to English, and one participant reported being able to speak two additional L2s. The most common additional L2s were still French (N = 4), German (N = 3) and Spanish (N = 2), with also

Dutch, Azeri and Swahili being reported once each. 47.8% of participants reported that they have been studying language in some capacity at a higher education level, and 30.4% reported that they work with language. Participants were asked how much of their everyday language input and output is in English, and results are displayed in table 1. Both categories were broadly defined, communication including both oral and written modes, and input being exemplified as music, traditional and social media, games, books, and so on.

Table 1. Numerical background variables in P1 and P2

	P1 (N = 46)			P2 (N = 31)		
	Mean	Min.	Max.	Mean	Min.	Max.
Age	35.7	19	72	35	20	72
Age of English acquisition onset	7.8	3	11	8	3	11
Number of L2s learnt in a formal context[1]	2.3	1	5	2.2	1	5
% of communication in English	22.5	0	65	23.7	2	65
% of language input in English	55.4	5	99	59.4	5	95

1. Including English

The participants of P2, a subset of the participants of P1, consisted of 71% women and 29% men. Numerical variables are displayed in table 1 above. Two participants had one or more L1 in addition to Norwegian. 16.1% reported Nynorsk as their written variety, 83.9% reported Bokmål. German, French and Spanish were still the most prevalent L2s learnt in a formal context, and some other European and non-European L2s were still also mentioned once each. 22.6% of participants reported being able to speak one other L2 in addition to English, and one participant reported being able to speak two additional L2s. French (N = 4) was most prevalent, then Spanish (N = 2), and Azeri, German, Dutch and Swahili were reported once each. 48.4% reported that they have been studying language in some capacity at a higher education level, and 29% reported that they work with language.

3.3 Survey design

Data collection was performed using an online survey. The survey was created using the survey tool Nettskjema, provided by the University of Oslo. The project was registered with the Norwegian Centre for Research Data (NSD) prior to distribution of the survey.

All text in the survey beside L2 test items was in Norwegian, since Norwegian is the L1 of all participants. This was done to ensure that the survey and the tasks within it were as comprehensible for the participants as possible. Furthermore, the written variety used was Bokmål, as this is the majority variety. The survey was pilot tested to increase the likelihood that explanations and questions were easily understandable for participants. None of the tests in the survey were timed. All of the tests except for the L2 vocabulary test were introduced in the same way, with a task instruction text and an example. The L2 vocabulary test did not include an example. All tests except for two had both L1 and L2 items, which were always placed into two separate sections. The L1 section, including

an L1 example, was always presented first. The task instructions were always presented again, together with an L2 example, at the start of each L2 section. The two tests that did not have two language sections were the L2 vocabulary test and the *Morphological awareness General* test, which was constructed to be language-general. See Appendix A-K for all test explanations and examples.

The survey was divided into two parts due to its length. Some tests were prioritized over others and placed in P1. At the end of P1, participants could elect to either end the survey or move on to P2. To incentivize people to complete the whole survey, all participants who completed P2 could sign up to be part of a lottery where the prize was a gift card of the winner's choice with a value of up to 500 NOK.

The tests were initially planned in a thematic order, moving from phonology through morphology to syntax, and grouped into assumed MLA and MLK tests. However, the order of the tests was somewhat rearranged in the survey, partly due to the division of the survey into two parts, and partly due to the similarity of the instructions to the L2 vocabulary test and the *Phonological constraints* test. In order to avoid confusion, the tests of *Phonological constraints* and *Phonological categorisation* were moved away from the L2 vocabulary test. As far as possible, tests on similar topics were presented together so that participants would not constantly need to change their mindset between tests. Consequently, despite there only being a potential issue with the *Phonological constraints* tests, both of the phonological awareness tests were moved in order to retain thematic cohesion.

P1 contained six tests and the background questionnaire. The L2 proficiency test was presented first. The rest of the tests were intended to measure awareness of morphology, syntax and phonology, as well as grammatical knowledge. All but one of the metalinguistic tests in this section were of the type that was assumed to measure awareness. This choice was made on the basis of particular interest in awareness data and due to the gap in extant research. The one MLK test was kept due to its particular prevalence in extant research on MLK. P2 contained the remaining five tests, three assumed to measure MLK and two assumed to measure MLA. See Appendix A-K for all tests and their items.

The background questionnaire was primarily concerned with participants' language experience, both in relation to Norwegian as L1, English as L2 and other possible L2s. Dialect background was investigated using the ten dialect regions presented by Mæhlum and Røyneland (2012). Furthermore, there were some questions regarding personal information such as age, gender, education and the presence of any learning disabilities and/or diagnoses. See appendix L for a full overview of the background questionnaire.

3.3.1 The L2 proficiency test

Participants' L2 proficiency was tested using the *LexTALE* test, which has been found to be a valid predictor of L2 English vocabulary knowledge and also, to a decent degree, L2 English proficiency (Lemhöfer & Broersma, 2012). *LexTALE* presents participants with low-frequency English words and orthographically legal and pronounceable nonwords. Participants are tasked with identifying whether the items they are presented with are existing English words or not. The test items were retrieved from lextale.com, where they are openly available, and inserted into the survey tool Nettskjema with the rest of the survey. The standard *LexTALE* instructions were translated into Norwegian for

optimal participant comprehension. The instructions on how to administer the *LexTALE* test indicated that items should be presented one by one when administered digitally. However, due to the design of the survey tool and in order to make the participant experience as smooth as possible, the items were instead presented below each other, as they may be when the test is administered on paper.

LexTALE is admittedly a narrow measure of L2 proficiency, but was chosen nonetheless due to its decent correlation with more substantial proficiency measures (Lemhöfer & Broersma, 2012, p. 333). Additionally, there was a strong practical advantage of using *LexTALE* in that it is a fairly short test, estimated to take only 5 minutes to complete. Since the rest of the survey turned out to be somewhat time consuming, the concise and efficient design of *LexTALE* was a great benefit. *LexTALE* was also chosen as a measure over grammar-based proficiency tests due to the lowered risk of *LexTALE* being confounded with some of the metalinguistic tests in the survey, as compared to grammar-based ones.

3.3.2 The metalinguistc tests in P1

Morphological awareness, language specific version. This test was based on a test of morphological awareness employed by Reder et al. (2013, p. 694). Assumed to be a measure of MLA, the present test aimed to measure participants ability to apply the morphological rules of their L1 and L2 to nonwords. There were 16 items in total, eight in each language. Each language section contained four items with inflectional affixes and four items with derivational affixes.

Each test item consisted of one or a small set of sentences, which in turn contained a nonword and a gap. The sentence(s) were intended to provide context to the nonword, and the participants were instructed to amend the nonword so that it would fit inside the gap. The amendment required was the addition of inflectional or derivational affixes to the nonwords. Most of the items only required the addition of an affix, as the nonword was presented in its root form. However, two items in each language were more complex, as they were presented already affixed, requiring participants to also remove an affix before adhering a new one. The addition of more complex items was done to decrease the risk of ceiling effects, as they were believed to be somewhat more advanced. One point was awarded per item.

Grammaticality judgement. This test was based on Bialystok's (1991, p. 132) argument that MLA involves attention, e.g., the ability to focus one's attention onto a specific feature of language, namely forms rather than meaning. Assumed to be a measure of MLA, the present test aimed to measure participants' awareness of morphosyntax in their L1 and L2. There were 40 items in total, five target items and 15 filler items in each language.

Participants were presented with sentences they had to judge to be either grammatically correct or incorrect. The target items were sentences that were grammatically correct, but semantically anomalous. The filler items were grammatically and semantically correct sentences, and sentences that were ungrammatical and either semantically acceptable or anomalous. All ungrammatical sentences contained errors that were expected to be fairly easy to recognize, in both the L1 and L2 section. One point was awarded per target item correctly accepted.

Error correction and rule explanation. This test was based on similar tests employed in multiple prior studies in the form of different variations of the task of identifying, correcting, describing and/or explaining grammatical errors (Alderson et al., 1997; Elder & Manwaring, 2004; Roehr, 2008; Sorace, 1985). Assumed to be a measure of MLK, the present test aimed to measure participants' knowledge of grammatical rules in their L1 and L2. There were 12 items in total, six in each language.

The participants were given sentences with highlighted grammatical errors. Firstly, participants were asked to correct the error. Secondly, they were asked to explain why the sentence was grammatically incorrect, as if they were to formulate a short grammatical rule as an explanation. Participants could draw on any language known to them in order to respond to the open-ended explanation questions. Each error correction was awarded one point. Each rule explanation was awarded two points if correctly explained, even if it did not include advanced terminology, and one point if the explanation was only partially correct.

Half of the items were considered low-level errors in terms of correction, but high-level in terms of explanation, since these items contained errors that are usually intuitively understood as wrong, usually without explicit knowledge of why. The items were reused ungrammatical items from the grammaticality judgement task. Both language sections contained two items each with word order errors. The last low-level L1 item contained a gender agreement error, and the last low-level L2 item contained a tense error.

The other half of the items were considered high-level errors in terms of correction, but low-level in terms of explanation. This is due to the L1 errors being closely related to literacy, i.e., the errors only appearing in writing, and the L2 errors being common errors made by Norwegian speakers of English due to the grammatical elements functioning differently in the two languages. Hence, participants might already have encountered and internalized pedagogical rules related to these errors, which might aid them in the explanation of the errors, given that they did recognize them as errors.

Phonological categorisation. This test was based on one of the tests used by Reder et al. (2013, pp. 693-694) for measuring phonological awareness. Assumed to be a measure of MLA, the present test aimed to measure participants' ability to distinguish and categorize syllables and phonemes in their L1 and L2. There were 16 items in total, eight in each language. Participants were presented with four words per item, and were asked to decide which two out of the four had an identical element either at the beginning or end according to their pronunciations. It was stressed that participants were to focus on pronunciation, not spelling. There was an even split between phonemes and syllables being the element in question, and an even split between beginning and end of the word as the position in question. One point was awarded per item.

Phonological constraints. This test was based on Tunmer and Herriman's (1984, p. 13) example of linguistic intuition, which in the present thesis is considered part of MLA. The present test aimed to measure participants' awareness of phonological constraints in their L1 and L2. There were 20 items in total, 10 in each language. Participants were presented with nonwords, and they were asked to evaluate whether the nonwords could be possible words in the language at hand. The proportion of possible nonwords to impossible nonwords was an even split, 5 of each in each language. One point was awarded per item.

3.3.3 The metalinguistic tests in P2

Sentence structure identification. Assumed to be a measure of MLA, this test aimed to measure participants' ability to recognize syntactic structures of whole sentences. For each item, participants were presented with an example sentence and three optional sentences, and they were tasked with selecting the optional sentence with the same syntactic structure as the example sentence. There were 12 items in total, six in each language. One point was awarded per item.

Word function identification. This test was based on the MLAT IV; some items were borrowed directly from the samples of the MLAT IV displayed on the website of the foundation that currently owns the rights to the MLAT (Language Learning and Testing Foundation, n.d.), while the rest of the items were created following a similar pattern to the one found in the MLAT IV samples. This type of test has previously been shown to intercorrelate with a correction and explanation measure of MLK similar to the one employed in P1 of the present thesis (Roehr, 2008).

The present test aimed to measure participants' understanding of syntactic functions in their L1 and L2. There were 18 items in total, nine in each language. Each test item presented two sentences. Each first sentence contained one highlighted word, and each second sentence contained five underlined words. The task of the participants was to choose the underlined word that fulfilled the same function in the second sentence as the highlighted word in the first sentence. One point was awarded per item.

Phrase function identification. This test was loosely based on tests performed by Alderson et al. (1997, pp. 99, 107) and Elder and Manwaring (2004, p. 150) with the aim of measuring MLK. The present test aimed to measure participants' knowledge of phrase functions in their L1 and L2. There were 12 items in total, six in each language. For each item, participants were asked to identify the function of the highlighted segment in the sentence by choosing one out of three options. Each type of phrase function was only represented as the correct answer once in each language section. One point was awarded per item.

Word class identification. Also this test was loosely based on tests employed by Alderson et al. (1997, pp. 99, 107) and Elder and Manwaring (2004, p. 150) with the aim of measuring MLK. The present test aimed to measure participants' knowledge of word classes. There were 20 items in total, 10 in each language. For each item, participants were asked to identify all words belonging to a certain word class in a given sentence. The number of target words varied from item to item, ranging from two to five. One point was awarded for each item answered correctly, i.e., with all target words and no non-target words submitted as the answer. Half a point was awarded where the sum of submitted target words minus submitted non-target words amounted to at least half of the item's correct number of target words.

Morphological awareness, language general version. This test was developed from the language-specific test of morphological awareness presented above, meaning it is fairly loosely based on the test of morphological awareness employed by Reder et al. (2013, p. 694). Language-general is operationalized in the present thesis as something either held in common by all languages tested or held by none of the languages tested. One problem encountered while creating this language-general test was that it was not possible to create a test that was completely removed from participants' known languages. Consequently, since the task was focused on morphology, only the target words and

affixes were nonwords. Everything else was written in Norwegian, as use of the participants' L1 was assumed to be perceived as the most unmarked choice.

The test aimed to measure morphological awareness in the form of ability to adopt and apply novel morphological rules to nonwords. The novel morphological rules were presented in the form of nonce affixes, i.e., affixes invented for this task. The test consisted of eight items, half of which contained inflectional nonce affixes and half of which contained derivational nonce affixes. For six of the items, the nonce affixes did not coincide with affix usage in Norwegian and English, meaning that the nonce affixes were placed in different positions (front, middle, back) than affixes with the same functions would be in Norwegian and English. The two items with affix-placement that did coincide with the L1 and L2 were the ones with word-final nonce affixes, which is the most common placement for affixes in Norwegian and English.

Each test item consisted of two example sentences and two test sentences. All sentences within the same test item used the same nonce affix. However, the nonwords varied from sentence to sentence also within the test items. The example sentences displayed the use of the nonce affix in two ways on two different nonwords, and the test sentences required participants to fill the sentence gaps with the new nonwords presented, amended by the current nonce affix. See Appendix K for examples. One point was awarded for each correct item.

3.4 Data coding

The survey data was exported from Nettskjema to Excel, where it was coded, sorted and standardized, before being analysed in IBM SPSS Statistics. All multiple-choice tests, including *LexTALE*, were scored automatically. The rest of the tests required participants to type their answers, and thus were scored manually. All final scores were standardized to percentages due to the recognisability and simplicity of that scale, as well as to match *LexTALE*, the only pre-existing test used in the survey. The below paragraphs outline some coding considerations encountered with each of the manually scored tests, as well as with the background section.

Morphological awareness, language specific. In this test, spelling errors were not counted as errors unless they resulted in the wrong morpheme being applied.

Error correction and explanation. Some items had more than one possible answer in the correction section (e.g., *I helping* could be corrected to *I helped* or *I was helping*), and all answers that were technically correct were accepted. The answers given in the explanation section of the test indicated that participants might have interpreted the error explanation prompt differently. A solution guide of key points was created in order to ensure an objective scoring procedure. This way, correct explanations worded in many different ways could be accepted and awarded two points. Answers that were only partially correct or merely described the error with no further explanation were awarded one point.

Word class. Answers were not deemed wrong based on spelling mistakes or morphological amendments; as long as it was clear which target word the answer referred to, it was accepted. In some items, target words were repeated (e.g., *…until* **you** *get rid of the car that* **you** *love too*). In these instances, the identical target words counted as one, since noting a target word once already indicates that the participant has

recognized it correctly. Due to a lack of specificity regarding repeat words in the task explanation, some participants noted the identical target words every time they appeared in the same item, while others only noted them once.

Morphological awareness, language general. In contrast to the language-specific version of this test, there was no tolerance of spelling errors in these answers. This was due to the intricacy of the task, which contained both nonwords and non-affixes. It would be difficult to know whether a misspelling was due to a typing error or a failed understanding of the morphology at hand, and so all misspellings were deemed errors.

Background. Some issues were encountered when counting the number of L2s known and learnt. In cases where participants reported knowledge of specific L2s, but provided no information about learning these languages, they were counted as having been learnt informally. Languages reported as being learnt both formally and informally were counted only as formally learnt, since the question about informal learning regarded informal learning only. In cases where participants did not write English among their L2s known or learnt, English was still counted as such, as these participants had provided English acquisition onset ages and successfully completed the English proficiency test. Reports of some knowledge of Swedish and Danish were ignored as these languages are mutually intelligible with Norwegian and most Norwegians have had some exposure to them. Lastly, some numerical answers, namely SLA onset and current age, seem to have been entered by mistake in some cases. Where the correct answer was obvious from context, the number was corrected. Elsewise, the answer was removed. The participant with a resulting missing age was still verified as over 18 due to reported education level.

4 Results

Analyses were performed using test scores separated by language as variables. L1 variables are labelled N for Norwegian and L2 variables are labelled E for English. The one language-general test is labelled G for general.

4.1 Reliability analysis

Each language section of each metalinguistic test was analysed using Cronbach's α in order to evaluate their reliability, i.e., whether they consistently reflect the constructs they are believed to measure (Field, 2018, p. 821). An acceptable α value for ability tests is .7 (Field, 2018, p. 823). Table 2 shows the positive α values of the tests in P1.

Table 2. Cronbach's α of P1 tests (N = 46)

	α		α
Morphological awareness N	.648	Phonological categorisation N	.467
Morphological awareness E	.515	Phonological categorisation E	.233
Grammaticality judgement N	.212	Error correction and explanation N	.583
Grammaticality judgement E	.417	Error correction and explanation E	.622

N=Norwegian, E=English, G=General

Both language sections of the *Phonological constraints* test resulted in negative α values, which indicates that the tests do not function in their current form. Consequently, their data will not be used in the remainder of the study, and are not included when the dataset of P1 is referenced below. All of the remaining tests in P1 had positive α values, but none were above the .7 threshold. Table 3 shows the α values of all tests in P2.

Table 3. Cronbach's α of P2 tests (N = 31)

	α		α
Sentence structure N	.138	Phrase function N	.344
Sentence structure E	.707	Phrase function E	.270
Word function N	.447	Word class N	.651
Word function E	.586	Word class E	.722
Morphological awareness G	.671		

N=Norwegian, E=English, G=General

Most of the tests employed in this study did not appear to be highly reliable, only *Sentence structure English* and *Word class English* reached the threshold of α = .7. Despite these results, in the interest of exploratory analysis, all of the tests with positive α values are object of further investigation.

4.2 Exploratory factor analysis

In order to investigate RQ1, about finding ways of measuring MLA and MLK, exploratory factor analysis (FA) was conducted, as it is a method of analysis that can provide insight into potential clusters or underlying structures of sets of variables (Field, 2018, p. 779). There are multiple different methods of FA. Principal axis factoring was chosen for the present study as its function is to estimate underlying constructs, or factors, that cannot be measured directly (Field, 2018, p. 780). MLK and MLA are arguably such unmeasurable constructs. Furthermore, all analyses were conducted with oblique rotation (direct oblimin), as it allows for correlation between factors (Field, 2018, p. 794).

An initial FA (FA1) was conducted on the full dataset, meaning both P1 and P2, which consisted of 17 variables. The Kaiser-Meyer-Olkin (KMO) measure indicated low sampling adequacy for the analysis, KMO = .522. Six factors with initial eigenvalues above Kaiser's criterion of 1 were extracted, and together, they explained 78% of the variance. Table 4 shows the factor loadings after rotation.

Table 4. FA1: Rotated factor loadings of variables from P1 and P2 (N = 31)

	Factor					
	1	2	3	4	5	6
Morphological awareness N	-.054	-.155	.005	**.815**	.033	-.043
Morphological awareness E	-.143	-.320	.253	**.709**	.094	-.135
Grammaticality judgement N	-.030	**-.847**	.102	.078	-.148	-.145
Grammaticality judgement E	-.068	**-.797**	.058	.006	-.108	.046
Phonological categorisation N	-.152	.173	.128	.047	**.708**	.123
Phonological categorisation E	.082	-.030	.039	-.042	**.726**	-.154
Sentence structure N	.067	-.019	.164	.071	.013	**-.844**
Sentence structure E	**.568**	-.070	-.154	.098	.344	-.200
Morphological awareness G	.102	.191	-.163	**.743**	-.056	.020
Error correction and explanation N	.311	-.323	-.120	.137	.226	.202
Error correction and explanation E	**.520**	.034	.195	.313	.086	.067
Word function N	**.468**	-.201	-.052	.308	.218	.085
Word function E	.243	**-.602**	-.206	-.006	.183	-.009
Phrase function N	.060	.134	**.803**	.054	.094	-.152
Phrase function E	.062	-.177	**.648**	-.118	.102	-.054
Word class N	**.689**	.006	.382	-.007	-.085	.320
Word class E	**1.006**	-.022	-.018	-.078	-.108	-.164

N=Norwegian, E=English, G=General
Factor loadings over .4 appear in bold.
Blue represents assumed MLA tests and green represents assumed MLK tests.

Four factors had acceptable reliability values: factor 1 with α = .851, factor 2 with α = .746, factor 4 with α = .808, and factor 5 with α = .734. Factor 4 would have a higher reliability if *Morphological awareness General* was deleted, α = .854. Factors 3 and 6 did not have acceptable reliabilities with α = .684 and α = .138 respectively.

Due to the low KMO value of the full dataset, the KMO values of individual variables were investigated, and a new analysis was conducted using only the variables with KMO values above .5, which is considered a bare minimum (Field, 2018, p. 808). *Morphological awareness General* was also removed, as in addition to lowering the reliability of its factor, it also barely crossed the .5 KMO value threshold. Thus, the second FA (FA2) was conducted on 8 variables. The KMO value verified the sampling adequacy for the analysis, KMO = .785, and all KMO values for individual items were greater than .68. Two factors with initial eigenvalues above Kaiser's criterion of 1 were extracted, and together, they explained 66.4% of the variance. Table 5 shows the factor loadings after rotation.

Table 5. FA2: Rotated factor loadings of variables after exclusion (N = 31)

	Factor	
	1	2
Morphological awareness N	.027	**.954**
Morphological awareness E	.102	**.736**
Sentence structure E	**.724**	.084
Error correction and explanation N	**.572**	.072
Error correction and explanation E	**.647**	.102
Word function N	**.780**	.120
Word function E	**.509**	.092
Word class E	**.888**	-.278

N=Norwegian, E=English, G=General
Factor loadings over .4 appear in bold.
Blue represents assumed MLA tests and green represents assumed MLK tests.

Both factors had acceptable reliability values, factor 1 with α = .846 and factor 2 with α = .851. FA2 Factor 1 consisted of all the MLK tests included in FA2 as well as *Sentence structure English*, which was initially assumed to be a measure of MLA. FA2 Factor 2 contained the two remaining assumed MLA tests included in FA2.

A third FA (FA3) was conducted on the dataset from P1 of the study alone due to its somewhat higher sample size. FA3 consisted of 8 variables. The KMO measure indicated a mediocre sampling adequacy, KMO = .668. All KMO values for individual variables were greater than .57. Three factors with initial eigenvalues above Kaiser's criterion of 1 were extracted, and together, they explained 71.5% of the variance. Table 6 shows the factor loadings after rotation.

Table 6. FA3: Rotated factor loadings of variables from P1 (N = 46)

	Factor		
	1	2	3
Morphological awareness N	.331	**.503**	-.245
Morphological awareness E	.266	**.521**	-.293
Grammaticality judgement N	-.079	**.639**	-.007
Grammaticality judgement E	-.054	**.735**	.107
Phonological categorisation N	**.799**	-.106	.088
Phonological categorisation E	**.721**	.054	-.065
Error correction and explanation N	.020	.098	**-.552**
Error correction and explanation E	-.055	-.137	**-.924**

N=Norwegian, E=English, G=General
Factor loadings over .4 appear in bold.
Blue represents assumed MLA tests and green represents assumed MLK tests.

FA3 Factors 1 and 2 were reliable, both with α = .734. FA3 Factor 3 did not reach the reliability threshold, α = .676. Both of the reliable factors consisted of assumed MLA tests: The tests of *Phonological categorisation* loaded by themselves on FA3 Factor 1, while the language-specific tests of *Morphological awareness* and the tests of *Grammaticality judgement* grouped together on FA3 Factor 2.

The factors from FA2 and FA3 are the primary results of interest, as these analyses had the highest KMO values. See table 7 for an overview of the extracted factors.

Table 7. Reliable factors extracted in FA2 and FA3

FA2 Factor 1 FMLK	FA2 Factor 2 FMA	FA3 Factor 1 FPA	FA3 Factor 2 FMG
Sentence structure E	Morphological awareness N	Phonological categorisation N	Morphological awareness N
Error correction and explanation N	Morphological awareness E	Phonological categorisation E	Morphological awareness E
Error correction and explanation E			Grammaticality judgement N
Word function N			Grammaticality judgement E
Word function E			
Word class E			

N=Norwegian, E=English, G=General

The two *Morphological awareness* tests consistently loaded together, and FA2 Factor 2, which consisted of only these two tests, is renamed Factor of Morphological awareness (FMA). The Morphological awareness tests also loaded together with the *Grammaticality*

judgement tests when the larger sample size allowed for the inclusion of the latter in the analysis, and thus, FA3 Factor 2 is renamed Factor of Morphological awareness and Grammaticality judgement (FMG). The *Phonological categorisation* tests also loaded together, but separately from the other assumed measures of MLA. FA3 Factor 1 is renamed Factor of Phonological awareness (FPA), since the *Phonological categorisation* test is the only test of phonological awareness included in the results. All assumed MLK tests in FA2 grouped together by loading on the same factor, and with them was also the assumed MLA test *Sentence structure English*. Due to the great majority of MLK tests, FA2 Factor 1 is renamed Factor of metalinguistic knowledge (FMLK).

4.3 Correlation analysis

Correlation analyses were conducted in order to investigate RQ2, RQ3 and RQ4, about the relationship between MLA and MLK, and the possible relationships between MLA, MLK and the metalinguistic tests on one side, and L2 proficiency and background factors on the other. Both the independent metalinguistic tests and the factors extracted in FA2 and FA3 were used in the analyses. The correlation analyses were also used to further explore RQ1, about how MLA and MLK may be measured. The ascribed strength of correlation coefficients varies in the literature. Based on the specific literature reviewed in this thesis (e.g., Elder & Manwaring, 2004, p. 153; Roehr, 2008, pp. 186, 189; Roehr & Gánem-Gutiérrez, 2009, pp. 171-172; Yeon et al., 2017, pp. 438-439), correlation coefficients were considered weak below .4, strong above .7 and moderate in between said values.

A Pearson correlation analysis with bias corrected and accelerated bootstrap 95% confidence intervals (BCa CI) was conducted on all variables from P1 and P2. Correlations were retained at a significance level of $p \leq .05$, unless their confidence intervals (CI) were unsatisfactory, i.e., if they crossed 0, in which case the correlation was dismissed. Results are presented in two separate tables for purposes of space and order. Table 8 displays correlations between the variables in P1, including *LexTALE*.

Table 8. Pearson correlations of P1 variables (N = 46)

	LexTALE	Morphological awareness N	Morphological awareness E	Grammaticality judgement N	Grammaticality judgement E	Phonological categorisation N	Phonological categorisation E	Error correction and explanation N	Error correction and explanation E
LexTALE		.383**	.361*				.332*		
Morphological awareness N	.383**		.758**				.434**	.339*	.342*
Morphological awareness E	.361*	.758**		.338*	.354*		.339*		.391**
Grammaticality judgement N			.338*		.519**				
Grammaticality judgement E			.354*	.519**					
Phonological categorisation N							.581**		
Phonological categorisation E	.332*	.434**	.339*			.581**			
Error correction and explanation N		.339*							.519**
Error correction and explanation E		.342*	.391**				.519**		

N=Norwegian, E=English, G=General
r-scores in grey are duplicates.
Blue represents assumed MLA tests and green represents assumed MLK tests.
*. Correlation is significant at the .05 level (2-tailed).
**. Correlation is significant at the .01 level (2-tailed).

Most of the correlations of the P1 variables could be classified as weak. The only strong correlation was between the Norwegian and English versions of the *Morphological awareness* test, $r = .758$, $p \leq .01$. The moderate correlations were between the Norwegian and English versions of the *Grammaticality judgement* test, $r = .519$, $p \leq .01$, between the Norwegian and English versions of the *Phonological categorisation* test, $r = .581$, $p \leq .01$, between the Norwegian and English versions of the *Error correction and explanation* test, $r = .519$, $p \leq .01$, and between *Morphological awareness Norwegian* and *Phonological categorisation English*, $r = .434$, $p \leq .01$. *LexTALE* was found to correlate weakly with *Morphological awareness Norwegian*, $r = .383$, $p \leq .01$, *Morphological awareness English*, $r = .361$, $p \leq .05$, and *Phonological categorisation English*, $r = .332$, $p \leq .05$.

Table 9 displays correlations between the variables in P2 and all other individual variables. Variables from P1 that are not represented in table 9 did not produce any significant correlations with the tests from P2.

Table 9. Pearson correlations of P2 variables (N = 31)

	Morphological awareness G	Sentence structure N	Sentence structure E	Word function N	Word function E	Phrase function N	Phrase function E	Word class N	Word class E
Morphological awareness N	.557**			.438*					
Morphological awareness E	.433*			.388*					
Error correction and explanation N				.540**					.432*
Error correction and explanation E			.482**	.698**				.438*	.507**
Morphological awareness G				.385*					
Sentence structure N						.372*			
Sentence structure E				.590**	.427*				.646**
Word function N	.385*		.590**					.395*	.524**
Word function E			.427*						.439*
Phrase function N		.372*					.521**	.372*	
Phrase function E						.521**			
Word class N				.395*		.372*			.697**
Word class E			.646**	.524**	.439*			.697**	

N=Norwegian, E=English, G=General
r-scores in grey are duplicates.
Blue represents assumed MLA tests and green represents assumed MLK tests.
*. Correlation is significant at the .05 level (2-tailed).
**. Correlation is significant at the .01 level (2-tailed).

Most of the correlations with P2 variables could be classified as moderate. However, there were no strong correlations tied to the variables in P2, and none of the P2 variables correlated with *LexTALE*. Three variables have higher numbers of moderate correlations than the other, namely *Sentence structure English*, *Word function Norwegian* and *Word class English*. There were moderate correlations between the Norwegian and English versions of the *Phrase function* test, $r = .521$, $p \leq .01$, and between the Norwegian and English versions of the Word class test, $r = .697$, $p \leq .01$. No significant correlation was found between the Norwegian and English versions of the *Sentence structure* and *Word function* tests. *Morphological awareness General* correlated moderately with both *Morphological awareness Norwegian*, $r = .557$, $p \leq .01$, and *Morphological awareness English*, $r = .433$, $p \leq .05$.

Pearson correlation analyses with BCa CI were also conducted with *LexTALE* and the factors extracted in FA2 and FA3. Correlations were retained at a significance level of $p \leq$ .05, unless their CIs were unsatisfactory, which none were in this case. The analysis was conducted in two rounds due to varying sample sizes, but the results are presented together in table 10.

Table 10. Pearson correlations of LexTALE and extracted factors

	LexTALE	FMLK	FMA	FPA	FMG
LexTALE			.398**		.319*
N			46		46
FMLK			.451*		.482**
N			31		31
FMA	.398**	.451*		.385**	.900**
N	46	31		46	46
FPA			.385**		
N			46		
FMG	.319*	.482**	.900**		
N	46	31	46		

r-scores in grey are duplicates.
*. Correlation is significant at the .05 level (2-tailed).
**. Correlation is significant at the .01 level (2-tailed).

There was only one strong correlation between factors, namely between FMA and FMG, *r* = .900, *p* ≤ .01. The two tests that make up FMA are also part of FMG, which might explain this particularly strong correlation. FMLK was moderately correlated with FMA, *r* = .451, *p* ≤ .05, and FMG, *r* = .482, *p* ≤ .01. *LexTALE* was weakly correlated with FMA, *r* = .398, *p* ≤ .01, and FMG, *r* = .319, *p* ≤ .05.

Lastly, multiple Pearson correlation analyses with BCa CI were employed with the extracted factors, the individual metalinguistic tests and the background variables. Again, the reason for running several analyses was the varying sample size. Correlations were retained at a significance level of *p* ≤ .05, unless their CIs were unsatisfactory, which none were in this case. Table 11 displays all significant correlations found.

Table 11. Pearson correlations of metalinguistic tests and background variables

	Error correction and explanation N	Error correction and explanation E	Word function N	Phrase function N
Number of L2s learnt formally	.408**			
N	46			
% of everyday communication in English	.300*			
N	46			
% of everyday language input in English			-.373*	
N			31	
SLA onset age		.315*	.437*	
N		45	30	
Current age		.307*		
N		45		
Number of L1s				-.429*
N				31

*. Correlation is significant at the .05 level (2-tailed).
**. Correlation is significant at the .01 level (2-tailed).

There were no significant correlations between the extracted factors and the background variables, and most of the correlations between the metalinguistic tests and the background variables could be classified as weak. All metalinguistic tests found to correlate with background variables were assumed MLK tests. The one highly significant moderate correlation was found between *Number of L2s learnt formally* and *Error correction and explanation Norwegian*, $r = .408$, $p \leq .01$. A second moderate correlation was between SLA onset age and Word function N, $r = .437$, $p \leq .05$. The moderate negative correlation between *Number of L1s* and *Phrase function N* is questionable due to the low number of participants with more than one L1 (N = 2).

5 Discussion

The results obtained are only tentative due to the small sample size and the low reliability of many of the tests. Keeping this in mind, the results will nonetheless be discussed in relation to the research questions and the literature reviewed above in order to outline topics of interest for further research.

5.1 The concepts of MLA and MLK, and the relationship between the two

The first RQ posed for the study was: How may the two underlying constructs MLA and MLK be measured as distinct factors? The hypothesis was that the use of a combination of various tests would lead to uncovering which variables form part of each construct. The factors extracted through the factor analyses indicated that there is a distinction between tests that were assumed to measure MLK and tests that were assumed to measure MLA.

The tests that loaded on the FMLK in FA2 are the clearest indication in this study as to how to measure MLK. Two of the tests had α scores above the reliability threshold, and although the reliability scores of the rest of the tests were lower, they were better than those of the tests in the other factors. Three of the four types of tests that loaded on this factor were tied to MLK in the literature. The *Error correction and explanation* test, or similar variations, was the most common measure of MLK in the literature reviewed (Alderson et al., 1997; Elder & Manwaring, 2004; Roehr, 2008; Sorace, 1985). The *Word function* test was inspired by a test employed by Roehr (2008), and the present results were similar to Roehr's, namely a correlation between this measure and the *Error correction and explanation* type of test. Furthermore, the *Word function* test was developed based on the test of grammatical sensitivity in the MLAT, so the present results could be argued to further indicate possible links between MLK and language aptitude. The *Word class English* test was based on Alderson et al. (1997) and Elder and Manwaring (2004), the latter of which also found a similar metalanguage test to correlate with their version of the *Error correction and explanation* test. The last test that loaded on FMLK was the *Sentence structure English* test. This test was developed without basis in the literature, and the expectation of it being an MLA test was not supported, as its factor loading and correlations instead tied it to measures of MLK. As the test had participants match sentences based on sentence structure, it is possible that this activity demanded conscious use of one's MLK, or at least yielded better performances with the active use of MLK.

How to measure MLA is less clear based on the results of the factor analyses. The assumed tests of MLA did not all load together onto the same factors; the language-specific tests of *Morphological awareness* loaded together both on their own and with the tests of morphosyntactic awareness (*Grammaticality judgement*), while the test of phonological awareness loaded on a separate factor. Somewhat similarly to the present study, Yeon et al. (2017, pp. 439-440) found through confirmatory factor analysis that their MLA tests loaded on three separate factors: phonological, orthographic and morphological awareness. However, their factors also intercorrelated moderately to

strongly, which the authors interpreted as a likelihood of the existence of a more general construct of MLA. The present study did not find as strong correlation results, but the tests of morphosyntactic awareness and phonological awareness correlated weakly to moderately with the tests of language-specific morphological awareness, indicating that there could be some relation. However, due to the low reliability scores of the assumed MLA tests, particularly of the phonological and morphosyntactic awareness ones, and the small sample size of the study, these results are uncertain and interpretation of them are merely exploratory.

In response to RQ2, on whether MLA and MLK are related constructs, the correlation analyses indicated that most of the extracted factors and some of the individual metalinguistic tests were significantly correlated across the awareness-knowledge divide, indicating that MLA and MLK may indeed be distinct, but related constructs. The factors found to correlate were the FMLK, FMA and FMG. The three individual metalinguistic tests central to this relationship are the ones of language-specific *Morphological awareness*, *Error correction and explanation* and *Word function Norwegian*. Despite the first test being assumed to measure MLA and the two latter MLK, almost all language versions of these tests correlated weakly to moderately. One possible interpretation of the correlation between the MLA test *Morphological awareness* and the MLK tests is as support for the argument that MLA is a prerequisite for MLK, i.e., that the ability to focus and reflect on language is a necessity for developing knowledge about it. Thus, scores on MLA measures will coincide with scores on MLK measures, as the latter to a certain degree is dependent on the former. Some further support for this is found in the correlation between FMLK and FMG, the latter of which consisted of measures of both morphological and morphosyntactic awareness. However, the lack of correlation between individual measures of MLA other than the language-specific *Morphological awareness* tests and individual tests of MLK arguably weakens this argument of dependency.

The results can also be interpreted to indicate that MLA and MLK are language-general concepts in the sense that they develop from all language experience one has. This indication in based on the observation that all factors extracted in FA2 and FA3 contained both Norwegian and English test versions. Moreover, all tests except for *Sentence structure* and *Word function* had highly significant and moderate to strong correlations between their Norwegian and English versions. These results potentially indicate that MLA and MLK are constructs that develop from and encompass the participants' experience with both the L1 and L2 tested in this study. However, no substantial claims can be made yet pertaining to the generality of MLA and MLK, since generality would require there to be connections between these concepts and all languages one knows. Whether participants knew additional languages to Norwegian and English was inquired about and included in the analysis (see section 5.3 for further discussion), but MLA and MLK was only measured in relation to Norwegian and English. Thus, how additional languages interact with MLA and MLK is not clear from this study, and further research should investigate MLA and MLK in relation to all languages known by multilinguals in order to obtain more comprehensive data to further explore the potential language-generality of MLA and MLK.

There were several tests that were excluded from the factor analyses in this study, but with further development, they still may become useful measures. The *Morphological awareness General* and *Word class Norwegian* tests had α values below, but close to the reliability threshold. Furthermore, the *Word class Norwegian* test correlated with several

other tests that loaded on the FMLK, and the *Morphological awareness General* test correlated with the language-specific *Morphological awareness* tests. Thus, these two excluded tests still appear to be relevant for measuring MLK and MLA, but a larger sample size is needed for this to be investigated further. On the topic of the *Morphological awareness General* test, it is worth noting that this test correlated more highly significantly and more strongly with the Norwegian than the English version of the *Morphological awareness* test, possibly indicating that although it was meant to be a language-general measure, the use of Norwegian for the non-target parts of the items might have disrupted the generality of the test.

Two further tests excluded from the factor analyses were the *Sentence structure Norwegian* test and both language versions of the *Phrase structure* test. They all had very low reliability scores and they only correlated with each other and *Word class Norwegian*. Their relevance to the measurement of MLA or MLK was therefore low in the present study, but with further development, they may still become useful measures in the future. Since the *Sentence structure English* test appeared to be highly relevant, the Norwegian version may also be, but it would require a thorough restructuring and further piloting of the test. The *Phrase structure* tests should in theory work much like the *Word class* tests in that they both test knowledge of metalanguage, and similar measures have been found to be relevant for MLK testing in the past (Alderson et al., 1997; Elder & Manwaring, 2004). Consequently, although they did not function well in the present study, the *Phrase function* and *Sentence structure Norwegian* tests may still be developed into reliable and relevant tests in the future.

Lastly, a moment of attention is given to the *Phonological constraints* test, which was excluded from all factor and correlation analyses due to its negative reliability scores. This indicated that the test did not reliably measure an underlying ability as intended, and hence that it did not contribute to measuring MLA. The *Phonological constraints* test was developed from the example of linguistic intuition in Tunmer and Herriman (1984, p. 13), and so despite arguably being a narrow operationalisation of linguistic intuition, the failure of this test may indicate a need for further investigation into the role of linguistic intuition in MLA.

In summary, there are indications that MLA and MLK can be measured as distinct, but related, possibly language-general constructs by using a collection of metalinguistic tests. These indications are, however, unreliable due to the small sample size and the low reliability scores of the majority of the individual tests developed in this study. All but two of the tests employed did not meet the reliability score threshold, indicating that most of these tests require further development and testing. Due to the limitations of the study, it is also difficult to argue for the exclusion of any of the tests from further development and investigation, even the ones with unexpected or very low reliability values. However, the most relevant tests are arguably the tests of *Morphological awareness General* and *Word class Norwegian*, since they correlated with tests that loaded on factors and were removed from the factor analysis based on their KMO values, which resulted from the low sample size of the study.

5.2 The relationship between MLA, MLK and L2 proficiency

The third research question was: To what degree, if at all, do metalinguistic abilities, possibly clustered as MLA and MLK, correlate with L2 English proficiency in the participant group of the present study? The correlation analyses showed that L2

proficiency, as measured with the *LexTALE* test, was weakly correlated with various assumed measures of MLA. Firstly, L2 proficiency correlated with the FMA. Between the individual tests of *Morphological awareness* that FMA consisted of, the Norwegian version was more correlated with L2 proficiency than the English version was. Moreover, L2 proficiency correlated with FMG and with the *Phonological categorisation English* test, both of which are also assumed to measure MLA. These results are in line with findings by Yeon et al. (2017) which indicated a link between MLA, particularly morphological and phonological awareness, and a sub-competence of L2 proficiency, namely L2 spelling.

No correlations were found between any assumed measures of MLK and L2 proficiency. This is contrary to the findings of Elder and Manwaring (2004), Renou (2001), Roehr (2008) and Sorace (1985), where L2 MLK was found to correlate with L2 proficiency. One possible reason for the differing results is the use of *LexTALE* as the test of L2 proficiency in the present study. The other mentioned studies employed more varied tests in order to measure L2 proficiency, such as measures of reading and listening comprehension, grammatical and lexical knowledge, and oral production. *LexTALE*, on the other hand, only measures vocabulary directly. Since none of the metalinguistic tests in the present study were vocabulary-focused, there was little chance of intercorrelation based on similarities between the measures. With more varied L2 measures, however, there might have been a higher degree of correlation with MLK measures due to test design similarities. Another possible explanation for the lack of correlation between MLK and L2 proficiency in the present study is the L2 English acquisition context in Norway. The English language is arguably very present in Norwegian society through various media sources, and thus, people in Norway acquire English both formally in school and informally though media input. Consequently, the implicit linguistic knowledge of English, or English proficiency, acquired by many Norwegians may to a lesser extent have been reliant on explicit grammar teaching and similar formal education approaches compared to the proficiency of participants in previous studies.

5.3 The relationship between MLA, MLK and background variables

The last research question was: Which background variables, if any, correlate with metalinguistic abilities, possibly clustered as MLA and MLK, in the participant group of the present study? The correlation analysis indicated that none of the extracted factors were correlated to any background variables, but a small selection of assumed MLK tests was correlated with a small selection of background variables.

In light of the hypothesized language-generality of MLA and MLK, one could assume that an increasing number of languages known would correlate with increased MLA and MLK. However, only two correlations were found with background variables pertaining to number of languages known. The first was the one highly significant correlation in the matrix, namely a moderate correlation between number of L2s learnt in a formal setting and performance on the *Error correction and explanation Norwegian* test. A possible explanation for this correlation is the increased exposure to metalanguage formal L2 education often provides. This knowledge may in turn heighten MLK in the L1. However, as the Norwegian and English versions of the *Error correction and explanation* test were correlated, it is notable that number of L2s learnt in a formal setting did not correlate with the English version of the test. A possible interpretation of this discrepancy is that only MLK related to one's L1 develops when learning L2s, and that MLK related to one L2

is not affected by the acquisition of another L2. This could in turn be seen as a complication of the hypothesis of language-general MLA and MLK, indicating these concepts to be complex systems where the different language-specific sections of the overall concepts influence each other in different ways. The second correlation pertaining to the relevance of the number of languages known was a moderate negative correlation between number of L1s and performance on the *Phrase function Norwegian* test. However, due to the low reliability of this test and its lack of correlation with most other metalinguistic tests, as well as the low number of participants with more than one L1, there is arguably no foundation for interpreting this correlation further.

Age is another background variable that may affect some aspects of MLK. Current age was weakly correlated with *Error correction and explanation English*. SLA onset age was found to be moderately correlated with current age, which is in line with Norwegian schools introducing English earlier and earlier over the years. Thus, SLA onset age correlating similarly weakly with *Error correction and explanation English* as current age did is consistent. SLA onset age also correlated moderately with *Word function Norwegian*. Without more detailed background information, it is difficult to make assumptions about these correlations as to whether the ages in and of themselves are the sources of increased MLK, or whether the age factors could be an indirect expression of e.g., changing L2 teaching approaches in Norwegian schools over the years.

Lastly, participants' experience with English in their everyday lives also appeared in the correlation analysis. Amount of everyday communication in English was weakly correlated with *Error correction and explanation Norwegian* and amount of everyday language input in English was negatively and weakly correlated with *Word function Norwegian*. Why experience with English correlated with two Norwegian assumed MLK tests is difficult to interpret, especially since the background questionnaire did not investigate whether the remaining amounts of language input and output were only in Norwegian or also in other languages.

The distribution of correlations between different MLK tests and background factors to a degree appears random; despite many of the metalinguistic tests correlating with each other, individual background variables merely correlated with one or two of the metalinguistic tests each, and none of the extracted factors. Aside from the perspective on language-generality discussed above, the correlations between background variables and assumed MLK tests arguably provide little further insight into the nature of MLA and MLK based on the currently available data.

5.4 General discussion

There is no clear consensus in extant research in regards to definitions and operationalisations of MLA and MLK, and so an attempt was made in this study to uncover how to measure these concepts through different metalinguistic tests developed based on the various approaches found in the literature. Due to the small sample size of the study, the results are merely tentative, but they do nonetheless provide implications for further research. Most of the tests in this study which were developed based on tests used in previous empirical research grouped together in a pattern consistent with prior research when put through factor analysis. The factor results also supported the working definitions of MLA and MLK created for this thesis (see section 2.1.4), meaning that the concepts appear to be separate, but related. The results were the clearest in terms of MLK, as all MLK tests involved in FA2 loaded onto only one factor, whereas the assumed

MLA tests correlated as individual tests, but did not all load together in the factor analyses. This may be an indication that MLA is a more complex concept, with more diverse, but interlinked components. Additionally, the results of the analyses can be argued to indicate that MLA and MLK are language-general concepts, meaning that they develop and consist of elements from, in this study, both L1 Norwegian and L2 English, and potentially, although not thoroughly investigated here, all languages one knows. How complex the internal structures of MLA and MLK may be and how these structures potentially interact within and between the two concepts are significant questions for future research.

In terms of potential relationships between MLA, MLK and other variables, there were two main findings. L2 proficiency was found to correlate only with assumed tests and factors of MLA, which is in line with the little research that has been done on MLA and L2 proficiency (Yeon et al., 2017), but different from the majority of the empirical literature reviewed (Elder & Manwaring, 2004; Renou, 2001; Roehr, 2008; Sorace, 1985), which has found MLK to be related to L2 proficiency. The proposed explanations for this discrepancy are differences in L2 proficiency test design, as well as differences in L2 acquisition contexts, meaning that participants in different studies may have learnt their L2 through varying formal approaches and varying amounts of informal acquisition. Some background variables correlated with some tests of MLK, and the one correlation of particular interest among them indicated a relation between number of L2 learnt formally and the Norwegian, but not the English version of the *Error correction and explanation* test. SLA onset age, current age and everyday experience with English also showed up as relevant variables, but were difficult to interpret at this point. In general, more systematic investigations are required in order to explore the relevance of background factors to MLA and MLK.

6 Conclusion

The present thesis investigated the concepts of MLA and MLK and their relationship to each other, to L2 proficiency and to background factors by conducting a quantitative study. The study was conducted with adult L1 Norwegian speakers of L2 English, and consisted of an online survey containing a series of tests aimed at measuring L2 proficiency and the two concepts, MLA and MLK, as well as a background questionnaire.

The tentative results of the present study indicate that there may be ways of measuring the underlying constructs MLA and MLK, which the analyses indicated to be distinct, but related and possibly language-general constructs. Much of the extant literature on MLA and MLK is diverse, but not necessarily contradictory, and by taking multiple approaches into account, a broad empirical measure was developed. The resulting testing method employed in this study, i.e., testing MLA and MLK by using a variety of different metalinguistic tests, is arguably a method with potential, albeit with a substantial need of further development, piloting and statistical testing.

In regard to correlations between metalinguistic abilities and other variables, specifically L2 proficiency and background factors, the results indicated that L2 proficiency to some degree is related to MLA. L2 proficiency and MLK, on the other hand, were not found to be significantly correlated. This contradicts prior research on the topic, but may be due to differences in participant groups, such as SLA context, or differences in test design. Correlations between some MLK tests and some background factors were found, one of which may indicate that number of L2s learnt formally may be related to L1 MLK. Otherwise, the seemingly random distribution of the correlations and the low sample size and reliability of the tests provided weak grounds for interpretation of these results.

6.1 Limitations and suggestions for further research

The tests developed for this study were, with one exception, to some degree based on tests already discussed in extant literature. However, all tests were created from scratch. Due to the limited scope of the thesis, the pilot testing was only conducted with a limited number of people with the purpose of controlling for test difficulty and comprehensibility of test explanations. No L1 speakers of English were consulted regarding the English language items used in the survey. In future research, this should be done to ensure accuracy of test items. Furthermore, the reliability of the different tests was investigated only after the data collection was concluded since a larger scale pilot testing was outside of the scope of this thesis. Instead, this thesis can be viewed as a pilot for further research on the topic in and of itself. For example, the reliability scores of individual tests found in this study may be of use for further development of metalinguistic tests, as they can be useful for indicating where changes need to be made in order to develop functional measures of MLA and MLK.

One of the tests, the *Error correction and explanation* test, is particularly accessible for analysis of reliability failures, as indications of potential issues emerged in the coding process. Firstly, the instructions were seemingly too vague regarding the error explanation part of the test, possibly resulting in different interpretations by different participants. In further development of this type of test, a clearer error explanation

prompt should be developed, e.g., by focusing more on the concept of 'general rule' rather than asking about what is wrong with the item sentence. Secondly, the coding of the answers was performed by one person alone. Examples of problems encountered in the coding was how much participant understanding to assume from incomplete, but accurate answers, as well as deciding how to score items where a correct explanation could be very similar to a mere description. In future use of similar tests, more clear explanations and task prompts as well as several data coders are suggested in order to enhance the reliability of the measure.

The operationalisation of L2 proficiency as L2 vocabulary knowledge as tested using *LexTALE* was arguable a narrow, but necessary one due to the limited scope of the study. Questions as to whether the choice of L2 proficiency measure affected the associations between proficiency and MLK emerged in the discussion. It could be beneficial to employ a more comprehensive test of L2 proficiency in the future, and with it, continue the investigation into the possible links and reasons behind them in regards to L2 proficiency and MLK.

The data were collected using an online survey, which despite being a practical method of data collection for this study also provided some challenges in the research process. For one, the online format narrowed down the options for tests. For example, tests that measure phonological awareness may more ideally be executed in an oral format, so that spelling does not interfere with the participants' answers. Thus, in-person testing should be considered as an option in future research. Participants' habits of using their mobile phones for responding to online surveys also increased the risk of encountering autocorrected and thus misspelled answers in tests where the spelling was important for the answer to be accepted, like in the *Morphological awareness* tests. Hence, scores may have come out lower than they really were. Again, this could be solved by using in-person, handwritten testing, although in that case, recruitment may prove a greater issue than with the more accessible online format.

The sample size of the study was too small to conduct reliable statistical analyses, so future research on the topic should aim to engage larger participant groups, and potentially also collect different types of data. In-person testing, as mentioned, is one example, participant introspection another; tests like the *Word function* and *Sentence structure* tests arguably operate in a grey zone where MLK might be involved, but this is difficult to know because no metalanguage is explicitly stated or required in the tests. However, participants outlining their thinking processes after test completion may provide more insight into the need and use of MLK in these tests. Lastly, for investigating possible causative or interactive links between MLA, MLK, language proficiency and background factors, as well as questions regarding interaction between MLA and MLK on one hand and other linguistic factors on the other, studies of longitudinal design may be of use, possibly investigating child participants or adult participants in an active SLA process.

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Appendix

Appendix A: LexTALE test explanation and items

Appendix B: The language-specific Morphological awareness test – explanation, examples and items

Appendix C: The Grammaticality judgement test – explanation, examples and items

Appendix D: The Error correction and explanation test – explanation, examples and items

Appendix E: The Phonological categorisation test – explanation, examples and items

Appendix F: The Phonological constraints test – explanation, examples and items

Appendix G: The Sentence structure test – explanation, examples and items

Appendix H: The Word function test – explanation, examples and items

Appendix I: The Phrase function test – explanation, examples and items

Appendix J: The Word class test – explanation, examples and items

Appendix K: The Morphological awareness General test – explanation, examples and items

Appendix L: Background questionnaire

Appendix M: Participation information

Appendix N: Relevance for the teaching profession

Appendix A: LexTALE test explanation and items

Oppgave 1

Denne oppgaven inneholder omtrent 60 tester. Hver av dem består av en rekke med bokstaver. Din oppgave er å avgjøre om den rekken med bokstaver utgjør et eksisterende engelsk ord eller ikke. Hvis du tror det er et eksisterende engelsk ord så trykker du på 'ja'. Hvis du tror at det ikke er et eksisterende engelsk ord så trykker du på 'nei'.

Hvis du er sikker på at det er et eksisterende ord, men du ikke vet hva det betyr, så skal du likevel trykke på 'ja'. Hvis du ikke er sikker på at det er et eksisterende ord så bør du trykke på 'nei'.

I denne oppgaven brukes britisk stavemåte, ikke amerikansk. For eksempel: 'realise' istedenfor 'realize'; 'colour' istedenfor 'color', og så videre. Ikke la dette forvirre deg. Oppgaven handler uansett ikke om å se etter stavefeil.

Du kan bruke så mye tid du vil. Denne delen av undersøkelsen vil ta omtrent 5 minutter.

Hvis alt er forstått kan du nå starte undersøkelsen.

Test items:

No.	ITEM	WORD STATUS	No.	ITEM	WORD STATUS	No.	ITEM	WORD STATUS
0	platery	0	19	spaunch	0	40	magrity	0
0	denial	1	20	allied	1	41	nourishment	1
0	generic	1	21	slain	1	42	abergy	0
1	mensible	0	22	recipient	1	43	proom	0
2	scornful	1	23	exprate	0	44	turmoil	1
3	stoutly	1	24	eloquence	1	45	carbohydrate	1
4	ablaze	1	25	cleanliness	1	46	scholar	1
5	kermshaw	0	26	dispatch	1	47	turtle	1
6	moonlit	1	27	rebondicate	0	48	fellick	0
7	lofty	1	28	ingenious	1	49	destription	0
8	hurricane	1	29	bewitch	1	50	cylinder	1
9	flaw	1	30	skave	0	51	censorship	1
10	alberation	0	31	plaintively	1	52	celestial	1
11	unkempt	1	32	kilp	0	53	rascal	1
12	breeding	1	33	interfate	0	54	purrage	0
13	festivity	1	34	hasty	1	55	pulsh	0
14	screech	1	35	lengthy	1	56	muddy	1
15	savoury	1	36	fray	1	57	quirty	0
16	plaudate	0	37	crumper	0	58	pudour	0
17	shin	1	38	upkeep	1	59	listless	1
18	fluid	1	39	majestic	1	60	wrought	1

Appendix B: The language-specific Morphological awareness test – explanation, examples and items

<u>Test explanation Norwegian section:</u>

Oppgave 2

I denne oppgaven får du setninger med liksom-ord som skal bøyes etter norske og engelske grammatiske regler. I hver underoppgave er det et uthevet liksom-ord og et hull. Det uthevede liksom-ordet skal bøyes sånn at det passer inn i hullet. Du skal ikke legge til andre ord, kun endre på selve liksom-ordet. De første setningene er norske, så liksom-ordene skal bøyes etter norske grammatikkregler. De engelske setningene kommer på neste side.

<u>Test example Norwegian section:</u>

Tore er **tost**, men Ronny er mer **tost**. Ronny er _____ enn Tore.

*Svaret er **tostere**.*

<u>Test items Norwegian section:</u>

Item no.	Item	Affix	Type	Subtype	Word class
2.1	Beate har en **kemse.** Hun får en **kemse** til. Nå har Beate to <u>kemser</u>.	-er	Inflectional	Plural	Noun
2.2	Ingrid har en **sympe.** Hans har den samme, og sier "den <u>sympa/sympen</u> har jeg også".	-a/-en	Inflectional	Definite	Noun
2.3	Hunden er **flon.** Sola er **flon.** Huset er <u>flont</u>.	-t	Inflectional	Gender agreement	Adj
2.4	Jeg **kjøkler** i dag, og jeg <u>kjøkla/kjøklet</u> i går også.	-er -> -et/-a	Inflectional	Tense: past	Verb
2.5	Her er det mye **sais.** Det er altså veldig <u>saisete</u> her.	-ete/-t	Derivational	Noun -> adj	
2.6	Vanligvis er Ella **golm,** men i dag er hun det motsatte, altså <u>ugolm</u>.	u-/anti- /ab-	Derivational	Adj -> adj	
2.7	Plakaten begynner å bli **vur.** Plakaten begynner altså å <u>vurne</u>.	-ne/ -es/-me	Derivational	Adj -> verb	
2.8	Linn var ute og **flovet** i går. Faktisk så er <u>floving</u> det beste Linn vet.	-t -> -ing	Derivational	Verb -> noun	

Her fortsetter oppgave 2, men med engelske setninger, hvor liksom-ordene skal bøyes etter engelske grammatikkregler. Oppgaveteksten er den samme som på forrige side:

I denne oppgaven får du setninger med liksom-ord som skal bøyes etter norske og engelske grammatiske regler. I hver underoppgave er det et uthevet liksom-ord og et hull. Det uthevede liksom-ordet skal bøyes sånn at det passer inn i hullet. Du skal ikke legge til andre ord, kun endre på selve liksom-ordet.

Test example English section:

Bernie is **lurd**, but Tommy is more **lurd**. Tommy is _____ than Bernie.

*Svaret er **lurder**.*

Test items English section:

Item no.	Item	Affix	Type	Subtype	Word class
2.9	Harry has a **worial.** He gets another **worial.** Harry now has two <u>worials</u>.	-s	Inflectional	Plural	Noun
2.10	I **fleit.** You **fleit.** She <u>fleits</u>.	-s	Inflectional	S-V agreement	Verb
2.11	Wendy **prings** her hair. She is <u>pringing</u> her hair.	-s -> -ing	Inflectional	Tense: present progressive	Verb
2.12	They were all **quand,** but Henry was the most **quand.** Henry was the <u>quandest</u> of them all.	-est	Inflectional	Superlative	Adj
2.13	Carl works with **cromling.** Carl is a <u>cromler.</u>	-ing -> -er/-or	Derivational	Noun -> noun	
2.14	There is a lot of **brunk** here. It is very <u>brunky</u> here.	-y	Derivational	Noun -> adj	
2.15	I will make my trousers more **bolm** tomorrow. Tomorrow, I will <u>bolmen</u> my trousers.	-en/ -ise/ -ize/-ify	Derivational	Adj -> verb	
2.16	Mei was **dervy,** but now she is the oposite. Now, Mei is <u>undervy</u>.	un- /anti-/a- /ab-	Derivational	Adj -> adj	

Appendix C: The Grammaticality judgement test – explanation, examples and items

Test explanation Norwegian section:

Oppgave 3

I denne oppgaven får du presentert ulike setninger. Oppgaven er å bedømme om setningene er grammatisk riktige eller ikke som helsetninger (altså setninger som kan stå alene). Det kan være setninger som ikke gir mening, men som likevel er grammatisk riktige. Oppgaven er ikke å bedømme om setningene gir mening, bare om de er grammatiske.

Tegnsetting, som kommaplassering, er ikke en del av oppgaven, så om det er plasser du stusser på tegnsettingen så kan du bare overse det.

De norske setningene kommer først, og på neste side finner du de engelske setningene.

Test example Norwegian section:

Er denne setningen grammatisk?

Vannet glemmer stadig å spise håpet sitt.

*Svaret er **ja**.*

Test items Norwegian section:

Item no.	Item	Type	Error	Error type
3.1	Den abstrakte tanken i foten min er død.	#Gram		
3.2	Idioti løper hurtig nedover treet.	#Gram		
3.3	Usikkerheten kaver rundt i bunnen av en rusten matboks.	#Gram		
3.4	Det er fantasien ålen prøver å gifte bort.	#Gram		
3.5	Hunden lånte måken et lite hint.	#Gram		
3.6	Kornet har kjøpt en rødt drøm.	#Ungram	adj agreement gender	Morphology
3.7	Husflua grave et stort hull i taket forrige uke.	#Ungram	verb tense	Morphology
3.8	Tirsdag kveld ambisjonen ble terrorisert.	#Ungram	word order (V2)	Syntax
3.9	Den gule hatten et kremt eide.	#Ungram	word order (*SOV)	Syntax
3.10	Ytterveggene jukset og lengtet etter en kopp kakao varm.	#Ungram	word order (*noun-adj)	Syntax

3.11	Trappen til kjelleren er ganske skummel.	Gram		
3.12	Ungene til naboen ler høyt.	Gram		
3.13	Badeballen flyter i bassenget til bestemor.	Gram		
3.14	Det er kaffetrakteren Føydis venter på.	Gram		
3.15	Farmor ga sønnen sin en god klem.	Gram		
3.16	De har bygget et veldig pen hus.	Ungram	adj agreement gender	Morphology
3.17	I fjor bo jeg på en hytte hele vinteren.	Ungram	verb tense	Morphology
3.18	På mandager Johannes vasker klærne sine.	Ungram	word order (V2)	Syntax
3.19	Den lille jenta damen klemte.	Ungram	word order (*SOV)	Syntax
3.20	Hun hadde alltid ønsket seg en bil blå.	Ungram	word order (*noun-adj)	Syntax

Rearranged order presented in the survey: 3.1, 3.16, 3.15, 3.12, 3.10, 3.17, 3.18, 3.2, 3.13, 3.19, 3.14, 3.7, 3.3, 3.4, 3.8, 3.20, 3.9, 3.5, 3.11, 3.6

Test explanation English section:

Her fortsetter oppgave 3, men med engelske setninger. Oppgaveteksten er den samme som på forrige side.

I denne oppgaven får du presentert ulike setninger. Oppgaven er å bedømme om setningene er grammatisk riktige eller ikke som helsetninger (altså setninger som kan stå alene). Det kan være setninger som ikke gir mening, men som likevel er grammatisk riktige. Oppgaven er ikke å bedømme om setningene gir mening, bare om de er grammatiske.

Tegnsetting, som kommaplassering, er ikke en del av oppgaven, så om det er plasser du stusser på tegnsettingen så kan du bare overse det.

Test example English section:

Er denne setningen grammatisk?

Fancy stickers tickle me when you cough.

*Svaret er **ja**.*

Test items English section:

Item no.	Item	Type	Error	Error type
3.21	The lion that cooks fish in your garden is going to cry.	#Gram		
3.22	Summer skates weirdly around my finger.	#Gram		
3.23	Wondering punishments lurked under the bluberries.	#Gram		
3.24	It is the sun that fashion sees under its own head.	#Gram		
3.25	The bear served his paw a great balloon.	#Gram		
3.26	A family of cows am living in your phone charger.	#Ungram	s-v agreement (be)	Morphology
3.27	Tomorrow my uncle will removed some fire from his claws.	#Ungram	verb tense/aspect	Morphology
3.28	Nothingness Germany washes slowly.	#Ungram	word order (V2)	Syntax
3.29	A glittering gem its first visitor pushes.	#Ungram	word order (*SOV)	Syntax
3.30	The game difficult was dragged across the sky for hours.	#Ungram	word order (*noun-adj)	Syntax
3.31	The shoes that you bought in a rush did not fit me.	Gram		
3.32	Owls hunt silently at night.	Gram		
3.33	Our new sofa is next to the fireplace in the living room.	Gram		
3.34	It is the gold medal that the team wished they had.	Gram		
3.35	The prince promised his friend a gift.	Gram		
3.36	You is very good at painting flowers!	Ungram	s-v agreement (be)	Morphology
3.37	A month ago I helping an old lady cross the road.	Ungram	verb tense/aspect	Morphology
3.38	Today cooks Rupert dinner for us.	Ungram	word order (V2)	Syntax
3.39	The blonde girls the dogs hug.	Ungram	word order (*SOV)	Syntax
3.40	Oscar has lost his sweater warm.	Ungram	word order (*noun-adj)	Syntax

Rearranged order presented in the survey: 3.31, 3.27, 3.36, 3.23, 3.22, 3.35, 3.26, 3.39, 3.33, 3.25, 3.28, 3.34, 3.37, 3.30, 3.21, 3.38, 3.40, 3.29, 3.24, 3.32

Appendix D: The Error correction and explanation test – explanation, examples and items

Test explanation Norwegian section:

Oppgave 4

I denne oppgaven får du flere setninger som hver inneholder én grammatisk feil. Feilen er uthevet i hver av setningene. Hver underoppgave er todelt.

Første del er å rette opp feilen ved å skrive om den uthevede delen av setningen til det du mener det skulle vært for å gjøre setningen grammatisk riktig.

Andre del er å forklare hvorfor den uthevede delen er grammatisk feil. Svaret trenger ikke være langt, men det må svare på hvorfor det uthevede er feil, ikke bare beskrive feilen eller gi navnet på hva slags type feil det er. Du kan tenke på det som at du skal formulere en kort grammatikkregel som forklaring.

Du kan skrive på hvilket språk du vil når du svarer på andre del av disse underoppgavene, bruk det språket/de språkene du er mest komfortabel med i denne situasjonen.

De norske setningene kommer først, og på neste side finner du de engelske.

Test example Norwegian section:

Mange **gutt** liker å tegne.

Rett opp den uthevede feilen: **gutter**

Feil fordi: **substantiver må bøyes i flertall**

Test items Norwegian section:

Item no.	Item	Error	Correction difficulty
4.1	De har bygget et veldig **pen** hus.	gender agreement	Low
4.2	På mandager **Johannes vasker** klærne sine.	V2	Low
4.3	Den lille jenta **damen klemte**.	order: SVO	Low
4.4	Eline **å** Maren banket på døra.	og/å	High
4.5	De liker **og** kjøre bil.	og/å	High
4.6	Den muskelen som pumper blod rundt i kroppen din, er **ett** hjerte.	et/ett	High

Test explanation English section:

Her fortsetter oppgave 4, men med engelske setninger. Oppgaveteksten er den samme som på forrige side:

I denne oppgaven får du flere setninger som hver inneholder én grammatisk feil. Feilen er uthevet i hver av setningene. Hver underoppgave er todelt.

Første del er å rette opp feilen ved å skrive om den uthevede delen av setningen til det du mener det skulle vært for å gjøre setningen grammatisk riktig.

Andre del er å forklare hvorfor den uthevede delen er grammatisk feil. Svaret trenger ikke være langt, men det må svare på hvorfor det uthevede er feil, ikke bare beskrive feilen eller gi navnet på hva slags type feil det er. Du kan tenke på det som at du skal formulere en kort grammatikkregel som forklaring.

Du kan skrive på hvilket språk du vil når du svarer på andre del av disse underoppgavene, bruk det språket/de språkene du er mest komfortabel med i denne situasjonen.

Test example English section:

All **dog** like to run in the park.

Rett opp den uthevede feilen: **dogs**

Feil fordi: **substantiver må bøyes i flertall**

Test items English section:

Item no.	Item	Error	Correction difficulty
4.7	Today **cooks Rupert** dinner for us.	order: SVO (not V2)	Low
4.8	Oscar has lost his **sweater warm**.	order: adj-noun	Low
4.9	A month ago I **helping** an old lady cross the road.	tense/aspect	Low
4.10	Franklin does his homework **quick**.	adv/adj	High
4.11	George wants to eat **any** apples	any/some	High
4.12	He **like** to spend time in the garden.	s-v agreement	High

Appendix E: The Phonological categorisation test – explanation, examples and items

Oppgave 5

I denne oppgaven får du flere sett med fire ord av gangen. Oppgaven er å velge ut de to ordene i hvert sett som har noe til felles i måten de uttales på. For hver oppgave får du beskjed om hva som skal være felles. I noen oppgaver er det en språklyd og i andre er det en stavelse. Noen ganger skal det være det første elementet i ordene, noen ganger skal det være det siste. Det er viktig at du tenker på ordene sånn de uttales, IKKE sånn de skrives, staves, bøyes eller lignende. Det kan være til hjelp å si ordene høyt om du har mulighet til det.

Du finner norske ord her, og engelske ord på neste side.

Test example Norwegian section:

Finn de to ordene som STARTER med den samme SPRÅKLYDEN.

kake - fløyte - hode - fisk

Fløyte og **fisk** *er riktig*.

En språklyd er ofte det samme som en bokstav, men ikke alltid - husk at det er uttale som gjelder her, ikke hvilke(n) bokstav som brukes.

Finn de to ordenen som SLUTTER med den samme STAVELSEN.

bryte - banan - kjevle - hvete

Bryte og **hvete** *er riktig.*

Et tips for å finne stavelser er å klappe rytmen i ordet - hvert klapp er én stavelse.

Test items Norwegian section:

Item no.	Item	Type	Element
5.1	<u>gift</u> - gløde - <u>gjemme</u> – kjenne	Phoneme front	/j/
5.2	sjal - <u>sirkel</u> - jente - <u>smøre</u>	Phoneme front	/s/
5.3	<u>lapp</u> - redd - <u>slep</u> – lab	Phoneme back	/p/
5.4	bjørn - <u>seng</u> - <u>vrang</u> – vind	Phoneme back	/ŋ/
5.5	<u>pose</u> - produkt - pulver – <u>politi</u>	Syllable front	po
5.6	kjempe - <u>kanal</u> - <u>karantene</u> – krampe	Syllable front	ka
5.7	<u>fjæring</u> - gjenklang - <u>demring</u> – anheng	Syllable back	ring
5.8	våken - granske - <u>åpne</u> - <u>høne</u>	Syllable back	ne

Her fortsetter oppgave 5, men med engelsk som språk. Oppgaveteksten er den samme:

I denne oppgaven får du sett med fire ord av gangen. Oppgaven er å velge ut de to ordene i hvert sett som har noe til felles i måten de uttales på. For hver oppgave får du beskjed om hva som skal være felles. I noen oppgaver er det en språklyd og i andre er det en stavelse. Noen ganger skal det være det første elementet i ordene, noen ganger skal det være det siste. Det er viktig at du tenker på ordene sånn de uttales, IKKE sånn de skrives, staves, bøyes eller lignende. Det kan være til hjelp å si ordene høyt om du har mulighet til det.

Test example English section:

Finn de to ordenen som STARTER med den samme STAVELSEN.

turbulence - turkey - twin - doll

Turbulence og **turkey** er riktig.

Et tips for å finne stavelser er å klappe rytmen i ordet - hvert klapp er én stavelse.

Finn de to ordene som SLUTTER med den samme SPRÅKLYDEN.

bike - slim - dragon - from

Slim og **from** er riktig.

En språklyd er ofte det samme som en bokstav, men ikke alltid - husk at det er uttale som gjelder her, ikke hvilke(n) bokstav som brukes.

Test items English section:

Item no.	Item	Type	Element
5.9	touch - <u>thirst</u> - <u>think</u> - those	Phoneme front	/ɵ/
5.10	character - <u>cheese</u> - circle – <u>child</u>	Phoneme front	/tʃ/
5.11	<u>caught</u> - teeth - dough – <u>threat</u>	Phoneme back	/t/
5.12	mint - <u>hand</u> - bribe – <u>ride</u>	Phoneme back	/d/
5.13	vaccine - <u>frantic</u> - fabulous – <u>franchise</u>	Syllable front	fræn
5.14	winter - <u>venom</u> - <u>vegetation</u> – beginning	Syllable front	ve
5.15	<u>melting</u> - along - <u>hunting</u> – begin	Syllable back	tiŋ
5.16	thirty - <u>cheery</u> - <u>worry</u> - screaming	Syllable back	ri

Appendix F: The Phonological constraints test – explanation, examples and items

Test explanation Norwegian section:

Oppgave 6

I denne oppgaven får du presentert liksom-ord som ikke betyr noe. Du skal bestemme om de kunne vært ord i det norske eller engelske språket eller ikke. Dette bestemmes basert på om ordene er mulige å uttale eller ikke. Du blir først spurt om norske ord, og så engelske på neste side.

Test example Norwegian section:

Kunne dette vært et norsk ord?

Bampo

*Svaret er **ja***

Kunne dette vært et norsk ord?

Kaprlon

*Svaret er **nei***

Test items Norwegian section:

Item no.	Item	Syllables	Pattern	Place of error
6.1	Blein	1	CCVC	
6.2	Føpp	1	CVC	
6.3	Panfel	2	CVC.CVC	
6.4	Soe	2	CV.V	
6.5	Åvsalmek	3	VC.CVC.CVC	
6.6	Æpkr	1	V<u>CCC</u>	Back
6.7	Tkolm	1	<u>CC</u>VCC	Front
6.8	Hfulta	2	<u>CC</u>VC.CV	Front
6.9	Mubjro	2	CV<u>CC</u>.CV	Middle
6.10	Kingopugv	3	CVC.CV.CV<u>CC</u>	Back

Rearranged order presented in the survey:

6.1, 6.5, 6.7, 6.3, 6.6, 6.10, 6.8, 6.2, 6.9, 6.4

Test explanation English section:

Her fortsetter oppgave 6, men med engelsk som språk.

I denne oppgaven får du presentert liksom-ord som ikke betyr noe. Du skal bestemme om de kunne vært ord i det norske eller engelske språket eller ikke. Dette bestemmes basert på om ordene er mulige å uttale eller ikke.

Test example English section:

Kunne dette vært et engelsk ord?

Sprud

*Svaret er **ja***

Kunne dette vært et engelsk ord?

Rbiond

*Svaret er **nei***

Test items English section:

Item no.	Item	Syllables	Pattern	Place of error
6.11	Gynk	1	CVCC	
6.12	Crulge	1	CCVCC	
6.13	Qualder	2	CVC.CVC	
6.14	Phordy	2	CVC.CV	
6.15	Ariweil	3	VC.V.CVC	
6.16	Spwinge	1	CCCVCC	Front
6.17	Baml	1	CVCC	Back
6.18	Urgelgt	2	VC.CVCCC	Back
6.19	Nandrkam	2	CVCCC.CVC	Middle
6.20	Tloorian	3	CCV.CV.VC	Front

Rearranged order presented in the survey:

6.16, 6.13, 6.19, 6.17, 6.15, 6.14, 6.20, 6.11, 6.12, 6.18

Appendix G: The Sentence structure test – explanation, examples and items

Oppgave 7

I denne oppgaven får du en eksempelsetning og tre alternativer i hver underoppgave. Oppgaven er å velge det alternativet som har en setning med samme setningsstuktur som eksempelsetningen. Det er kun den grunnleggende setningsstrukturen som må være lik.

Du får først norske setninger, og så engelske setninger på neste side.

Test example Norwegian section:

Jeg liker sjokolade.

Alt. 1: Julenissen ga meg gaver.

Alt. 2: Sjokolade vil alltid være min favoritt.

Alt. 3: Hunden så postmannen.

Alternativ 3 er det riktige svaret.

Test items Norwegian section:

Item no.	Item	Correct alternative	Wrong alternative	Wrong alternative
7.1	Hatten til mamma er borte.	Hesten til Hassan er syk.	Henrik sin hagestol ble stjålet i går.	Det var den grønne hatten som forsvant.
7.2	Sommerfuglene ble fanget med håv.	De gule husene ble solgt uten problemer.	Det fanges mange tyver med stripete genser.	Håven var full av sommerfugler.
7.3	Klovner har neser som er røde.	Kokker bruker råvarer som er gode.	Laken egner seg som halloweenkostyme.	Har man rød nese så kan man være klovn.
7.4	Under brua bodde det et troll.	Bak gjerdet satt det en gammel mann.	Kvinnene under paraplyen bodde i gata mi.	Brua var bebodd av et troll.
7.5	Det var kjemikeren som fortjente prisen.	Det var en god venn som lånte lua.	Det var ikke noe å gjøre med den saken.	Fysikeren vant en pris.
7.6	Livet er vanskelig og verden er urettferdig.	Det store biblioteket er stengt, men bakeriet er åpent.	Den store ørnen og den lille ærfuglen er gode venner.	En urettferdig verden ødelegger livet.

Alternatives were randomly rearranged in the survey.

Her fortsetter oppgave 7, men på engelsk. Oppgaveteksten er den samme:

I denne oppgaven får du en eksempelsetning og tre alternativer i hver underoppgave. Oppgaven er å velge det alternativet som har en setning med samme setningsstruktur som eksempelsetningen. Det er kun den grunnleggende setningsstrukturen som må være lik.

Test example English section:

I want my gifts.

Alt. 1: I cannot show you the secret.

Alt. 2: The cats watched their toys.

Alt. 3: My gifts are amazing this year.

Alternativ 2 er det riktige svaret.

Test items English section:

Item no.	Item	Correct alternative	Wrong alternative	Wrong alternative
7.7	The lady who lives by the school is terrifying.	The book which lies on the table is heavy.	The sister is the woman who saved him.	Whoever lives by the school scares the children.
7.8	A rough estimate was provided by the banker.	A secret door was discovered by the house keeper.	A big group of tourists walked by the gift shop.	The banker gave a rough estimate.
7.9	I touched the button that was big.	They forgot the soup that was healthy.	We saw each other twice that morning.	The bug button was also red.
7.10	There is a secret chest in the basement.	There is a tiny, white ghost on my bed.	There are the socks that I was looking for.	The loft had many hidden secrets.
7.11	It was the wise old man that finally understood the puzzle.	It was a woman that obsessively explained the conspiracy theory.	It was becoming a dangerously warm day.	The puzzle he finally understood was a sudoku.
7.12	She braided her hair while he washed the dishes.	We drove our Volvo until you bought a new car.	They trusted the process and were rewarded in the end.	Washing the dishes was his passion in life.

Alternatives were randomly rearranged in the survey.

Appendix H: The Word function test – explanation, examples and items

Test explanation Norwegian section:

Oppgave 8

I disse oppgavene får du flere setningspar. I setning 1 er det et markert ord. Oppgaven er å identifisere det ordet i setning 2 som har samme funksjon i setningen som det uthevede ordet i setning 1 har. Du trenger ikke å vite spesifikt hvilken funksjon ordene har eller hva funksjonen heter.

Du får fem alternativer å velge mellom, nemlig de understrekede ordene. Først får du norske setninger, og så engelske.

Test example Norwegian section:

Setning 1: Jonas lager **mat**.

Setning 2: Jenta som smiler mye har venner.

Riktig svar er **venner**.

Test items Norwegian section:

Item no.	Example sentence	Test sentence	Target word function
8.1	**Pernille** hoster mye.	I morgen kommer **jeg** til å trenge en klem som er lang og god.	Subject
8.2	Jeg ville bade **og** Martin ble med.	At den store bamsen som ligger i senga blir ryddet bort er greit, **for** ingen bruker den lenger.	Coordinating conjunction
8.3	Jeg vet ikke **om** jeg vil hjelpe deg.	Tidlig om morgenen på en vanlig tirsdag ble familien fortalt **at** hagen deres kom til å bli klippet veldig snart.	Complementizer/ Subordinating conjunction
8.4	Karsten og Alice maler en **vegg**.	De som bor ved siden av fabrikken har mange **klager** som de skal sende til kommunen.	Head of direct object NP
8.5	Farmor ga **meg** en gave.	Morten serverte **familien** et rykende ferskt brød som han hadde bakt den morgenen.	Indirect object
8.6	En **grønn** ball spratt høyt.	De **nye** kaninene var flinke til å løpe fort og spiste mange fargerike grønnsaker.	Adj in subject NP

8.7	Vennene **kunne** hjelpe hverandre.	Ikke <u>før</u> alle gjestene <u>hadde satt</u> seg **skulle** pannekakene <u>serveres.</u>	Modal auxiliary
8.8	Patrick rekker toget som venter **utenfor** stasjonen.	<u>Til</u> jul <u>så</u> ønsker jeg <u>meg</u> en gave som <u>kan</u> stå **på** peishylla.	Preposition in relative clause
8.9	Sprinteren løp **raskt**.	Den <u>irriterte</u> naboen i det <u>blå</u> huset ropte **høyt** at <u>ingen</u> burde klippe plenen så <u>tidlig</u> på dagen.	Adv

Test explanation English section:

Her fortsetter oppgave 8, men med engelske setninger. Oppgaveteksten er den samme som før:

I disse oppgavene får du flere setningspar. I setning 1 er det et markert ord. Oppgaven er å identifisere det ordet i setning 2 som har samme funksjon i setningen som det uthevede ordet i setning 1 har. Du trenger ikke å vite spesifikt hvilken funksjon ordene har eller hva funksjonen heter. Du får fem alternativer å velge mellom, nemlig de understrekede ordene.

Test example English section:

Setning 1: Kim plays **football**.

Setning 2: The good <u>man</u> found <u>dolls</u> in his <u>backpack.</u>

*Riktig svar er **dolls**.*

Test items English section:

Item no.	Example sentence	Test sentence	Target word function
8.10	**Mary** is happy.	From the <u>look</u> on your <u>face</u>, **I** can tell that you <u>must</u> have had a bad <u>day</u>.	Subject
8.11	We wanted to go out, **but** we were too tired.	<u>Because</u> of our extensive training, <u>we</u> were confident <u>when</u> we were out sailing, **yet** we were always aware <u>of</u> the potential dangers of being on the lake.	Coordinating conjunction
8.12	John said **that** Jill liked chocolate.	In <u>our</u> class, <u>that</u> professor claimed **that** he knew <u>that</u> girl on <u>the</u> television news show.	Complementizer/ Subordinating conjunction

8.13	The officer gave me a **ticket**!	When she went away to <u>college,</u> the young man's <u>daughter</u> wrote <u>him</u> the most beautiful **letter** that <u>he</u> had ever received.	Head of direct object NP
8.14	The waiter served **me** a big plate of food.	A nice <u>police officer</u> once offered **her** a ride home, but <u>she</u> declined <u>it</u> since she already had a plan for <u>her</u> return.	Indirect object
8.15	An **old** turtle lived on the beach.	Despite his <u>best</u> efforts, the **worried** <u>theatre</u> student could not <u>react</u> any more <u>convincingly.</u>	Adj in subject NP
8.16	You **must** clean your room.	No person in this room **can** <u>convince</u> me <u>that</u> I <u>do</u> not <u>need</u> that dress.	Modal auxiliary
8.17	Harry had a friend that lived **in** the neighbourhood.	The <u>thing</u> that I <u>cannot</u> show you is <u>a</u> treasure <u>that</u> is **from** the Carribean.	Preposition in relative clause
8.18	The child walked **slowly.**	<u>Ridiculously</u> <u>silly</u> beliefs spread **rapidly** online <u>nowadays</u>, and that is <u>scary</u> to think about.	Adv

Appendix I: The Phrase function test – explanation, examples and items

<u>Test explanation Norwegian section:</u>

Oppgave 9

I hver av setningene i denne oppgaven er det en uthevet del. Din oppgave er å velge det alternativet som beskriver hvilken funksjon den uthevede delen har i setningen. Du får tre alternativer. De fleste alternativene heter omtrent det samme på norsk og engelsk, så de er bare skrevet på norsk. Ett av dem står oppført på begge språk, kun fordi det har temmelig ulike navn på de to språkene. Kjært barn har mange navn, så det kan også hende at du har lært om disse setningsfunksjonene under andre navn enn det du finner her. Prøv uansett å velge det som passer best. De norske setningene kommer først, de engelske på neste side.

<u>Test example Norwegian section:</u>

Jeg har to ører.

Subjekt

Direkte objekt

Adverbial

*Her er **subjekt** riktig svar.*

<u>Test items Norwegian section:</u>

Item no.	Item	Correct alternative	Wrong alternative	Wrong alternative
9.1	Trappen som går ned til kjelleren er **ganske skummel**.	Predikativ / subject complement	Direkte objekt	Adverbial
9.2	**Ungene til naboen** ler høyt.	Subjekt	Adverbial	Predikativ / subject complement
9.3	Jeg løper **på bane**.	Adverbial	Direkte objekt	Verbal
9.4	Frøydis sitter på **sofaen.**	Direkte objekt	Subjekt	Adverbial
9.5	Farmor ga **sønnen sin** en god klem.	Indirekte objekt	Verbal	Direkte objekt
9.6	Kattungen **overnatter** hos oss.	Verbal	Adverbial	Direkte objekt

Alternatives were randomly rearranged in the survey.

Test explanation English section:

Her fortsetter oppgave 9, men med engelske setnigner. Oppgaveteksten er den samme som på forrige side:

I hver av setningene i denne oppgaven er det en uthevet del. Din oppgave er å velge det alternativet som beskriver hvilken funksjon den uthevede delen har i setningen. Du får tre alternativer. De fleste alternativene heter omtrent det samme på norsk og engelsk, så de er bare skrevet på norsk. Ett av dem står oppført på begge språk, kun fordi det har temmelig ulike navn på de to språkene. Kjært barn har mange navn, så det kan også hende at du har lært om disse setningsfunksjonene under andre navn enn det du finner her. Prøv uansett å velge det som passer best.

Test example English section:

My mother **sings** beautifully.

Subjekt

Verbal

Direkte objekt

*Her er **verbal** riktig svar.*

Test items English section:

Item no.	Item	Correct alternative	Wrong alternative	Wrong alternative
9.7	The shoes that you bought in a rush did not fit **me**.	Direkte objekt	Indirekte objekt	Subjekt
9.8	Owls hunt **silently** at night.	Adverbial	Verbal	Direkte objekt
9.9	Our new sofa is **green**.	Predikativ / subject complement	Direkte objekt	Adverbial
9.10	**The team** wishes they had the gold medal.	Subjekt	Direkte objekt	Indirekte objekt
9.11	The prince promised **his friend** a gift.	Indirekte objekt	Direkte objekt	Predikativ / subject complement
9.12	The sun **has turned** the beach extremely hot.	Verbal	Direkte objekt	Adverbial

Alternatives were randomly rearranged in the survey.

Appendix J: The Word class test – explanation, examples and items

Test explanation Norwegian section:

Oppgave 10

For hver setning i denne oppgaven skal du plukke ut alle ordene som hører til en bestemt ordklasse. Antallet ord du skal fram til kan variere fra setning til setning. Skriv ordene inn i tekstfeltet, adskild med komma.

De norske setningene kommer først, de engelske kommer på neste side.

Test example Norwegian section:

Hvilke ord er verb (inkludert hjelpeverb)?

Jeg har venner og jeg liker dem godt.

*Svar: **har, liker***

Test items Norwegian section:

Item no.	Item	Word class	Number of target words
10.1	**Prisen** på **matvarer** steg i **takt** med **panikken.**	Noun	4
10.2	**Hatten** som **mamma** kjøpte til **jul** er borte.	Noun	3
10.3	Alt hun **klarte** å **gjøre var** å **gjemme** seg og **lukke** øynene.	Verb (including auxiliaries)	5
10.4	Det **var** kjemikeren som **fortjente** prisen.	Verb (including auxiliaries)	2
10.5	Det **lokale** biblioteket er **stengt,** men bakeriet er **åpent.**	Adjective	3
10.6	Kine løp fort for å rekke den **store, gule** skolebussen.	Adjective	2
10.7	At Hanne kunne synge **pent** var en **skrekkelig** stor overraskelse.	Adverb	2
10.8	Trikken fulgte **naturligvis** sporet og kjørte **forsiktig dit** den skulle.	Adverb	3
10.9	**Hun** som bor der borte har de største hagestolene **jeg** har sett!	Pronoun	2
10.10	**Den** kan være snill hvis **den** vil, men vanligvis er hesten rampete mot **ham.**	Pronoun	2

Test explanation English section:

Her fortsetter oppgave 10, men med engelske setninger.

For hver setning i denne oppgaven skal du plukke ut alle ordene som hører til en bestemt ordklasse. Antallet ord du skal fram til kan variere fra setning til setning. Skriv ordene inn i tekstfeltet, adskilt med komma.

Test example English section:

Hvilke ord er substantiver?

I have friends and they like dogs.

Svar: **friends, dogs**

Test items English section:

Item no.	Item	Word class	Number of target words
10.11	She was amazed by the large **chunks** of **ice** washing up on the **beach.**	Noun	3
10.12	There is a secret **chest** in the **basement,** and some **ghosts** protect it.	Noun	3
10.13	I **touched** the button that **was** big.	Verb (including auxiliaries)	2
10.14	I **want** a car for Christmas, but I **do** not **think** I **will get** one.	Verb (including auxiliaries)	5
10.15	A **rough** estimate was quickly provided by the **busy** banker.	Adjective	2
10.16	It was the **wise old** man that finally understood the puzzle.	Adjective	2
10.17	A **relatively** big group of tourists walked **swiftly** by the gift shop.	Adverb	2
10.18	It was **suddenly** becoming a **dangerously** warm day.	Adverb	2
10.19	**We** will drive the Volvo until **you** get rid of the car that **you** love too.	Pronoun	2
10.20	**They** did not expect **that** to happen so soon.	Pronoun	2

Appendix K: The Morphological awareness General test – explanation, examples and items

Test explanation:

Oppgave 11

I denne oppgaven er det åtte underoppgaver. I hver underoppgave får du to eksempelsetninger og to test-setninger hvor du skal fylle inn ord. Hver eksempelsetning viser to versjoner av det samme liksom-ordet, bøyd på ulik måte med en liksom-bøying. De aktuelle ordene er markert hver gang de dukker opp. I test-setningene skal du fylle inn den riktig bøyde versjonen av det uthevede liksom-ordet i setningen. Alle setninger i samme underoppgave har samme bøyningsmønster for de aktuelle liksom-ordene, men selve liksom-ordene varierer.

Test example:

Nora har en **kvos** hage og et **ekvos** hus.

Lilly har et **elomu** bord og en **lomu** stol.

Adrian har en **gipel** busk og et _____ tre. *Svaret er **egipel**.*

Ulrik har et **esmin** smil og en _____ personlighet. *Svaret er **smin**.*

Test items:

Item 11.1

EXAMPLE 1	Jeg **antil** nå, og jeg **avtil** i går også.
EXAMLE 2	Jeg **avpoli** i går, og jeg **anpoli** nå også.
TEST 1	Jeg **ansel** nå, og jeg <u>avsel</u> i går også.
TEST 2	Jeg **avkram** i går, og jeg <u>ankram</u> nå også.

NONCE AFFIX	TYPE	SUBTYPE	PLACEMENT	WORD CLASS	NORWEGIAN EXAMPLE	ENLGISH EXAMPLE
an-/av-	Inflectional	Tense: past	Front	Verb	Smiler/smilte	Smile/smiled

Item 11.2

EXAMPLE 1	Martin har en **pralida.** Han får en **pralida** til. Nå har Martin to **praleda.**
EXAMLE 2	Finn har tre **uklerok.** Noen tar fra ham to **uklerok.** Nå har Finn bare én **uklirok** igjen.
TEST 1	Agnes har en **foliren.** Hun får en **foliren** til. Nå har Agnes to <u>foleren</u>.
TEST 2	Thomas har tre **tralefin.** Noen tar fra ham to **tralefin.** Nå har Thomas bare én <u>tralifin</u> igjen.

NONCE AFFIX	TYPE	SUBTYPE	PLACEMENT	WORD CLASS	NORWEGIAN EXAMPLE	ENLGISH EXAMPLE
-li/le-	Inflectional	Singular/ plural	Middle	Noun	Hytte/hytter	Cabin/cabins

Item 11.3

EXAMPLE 1	Hilde er **rodalk,** men Kjell er mer **rodalk.** Kjell er **romdalk.**
EXAMLE 2	Unni er **bromsil** enn Thea, som betyr at Unni er mer **brosil** enn Thea.
TEST 1	Einar er **heival,** men Leo er mer **heival.** Leo er <u>heimval</u>.
TEST 2	Paul er **vomkam** enn Vilde, som betyr at Paul er mer <u>vokam</u> enn Vilde.

NONCE AFFIX	TYPE	SUBTYPE	PLACEMENT	WORD CLASS	NORWEGIAN EXAMPLE	ENLGISH EXAMPLE
-m-	Inflectional	Comparative	Middle	Adj	Snill/snillere	Nice/nicer

Item 11.4

EXAMPLE 1	Jeg vil ikke ha hvilken som helst **vorn,** jeg vil ha **vornusk** som ligger der.
EXAMLE 2	Iver vil ha **enorusk** som ligger der, ikke hvilken som helst **enor.**
TEST 1	Kai vil ikke ha hvilken som helst **treik,** han vil ha <u>treikusk</u> som ligger der.
TEST 2	Rita vil ha **stritusk** som ligger der, ikke hvilken som helst <u>strit</u>.

NONCE AFFIX	TYPE	SUBTYPE	PLACEMENT	WORD CLASS	NORWEGIAN EXAMPLE	ENLGISH EXAMPLE
-usk	Inflectional	Definite	Back	Noun	Båt/båten	Boat/the boat

Item 11.5

EXAMPLE 1	Kurt sin jobb er å **frinel,** som vil si at han er en **akfrinel.**
EXAMLE 2	Pelle er en **akriap,** som vil si at Pelle sin jobb er å **riap.**
TEST 1	Morten sin jobb er å **trova,** som vil si at Morten er en <u>aktrova.</u>
TEST 2	Lise er en **akvimol,** som vil si at Lise sin jobb er å <u>vimol</u>.

NONCE AFFIX	TYPE	SUBTYPE	PLACEMENT	WORD CLASS	NORWEGIAN EXAMPLE	ENLGISH EXAMPLE
ak-	Derivational	Agent noun	Front	Verb -> noun	Bake/baker	Bake/baker

Item 11.6

EXAMPLE 1	Det er veldig mye **kraff** her. Det er altså veldig **skraff** her.
EXAMLE 2	Det er veldig **snugo** her. Det er altså veldig mye **nugo** her.
TEST 1	Det er veldig mye **lonta** her. Det er altså veldig <u>slonta</u> her.
TEST 2	Det er veldig **spind** her. Det er altså veldig mye <u>pind</u> her.

NONCE AFFIX	TYPE	SUBTYPE	PLACEMENT	WORD CLASS	NORWEGIAN EXAMPLE	ENLGISH EXAMPLE
s-	Derivational	Descriptive	Front	Noun -> adj	Rot/rotete	Mess/messy

Item 11.7

EXAMPLE 1	Noah er **gomovel.** Mons er det motsatte, altså **gomevel.**
EXAMLE 2	Abdi er **primesul.** Kamilla er det motsatte, altså **primosul.**
TEST 1	Stine er **tumoling.** Inga er det motsatte, altså <u>tumeling</u>.
TEST 2	Vanja er **kvimenil.** Aldo er det motsatte, altså <u>kvimonil</u>.

NONCE AFFIX	TYPE	SUBTYPE	PLACEMENT	WORD CLASS	NORWEGIAN EXAMPLE	ENLGISH EXAMPLE
-mo/me-	Derivational	Opposites	Middle	Adj -> adj	Grei/ugrei	Kind/unkind

Item 11.8

EXAMPLE 1	Kevin er **faum,** som vil si at han er en **faumi.**
EXAMLE 2	Emma er en **odmeli,** som vil si at hun er **odmel.**
TEST 1	Brit er **lanat,** som vil si at hun er en <u>lanati</u>.
TEST 2	Adam er en **spolvi,** som vil si at han er <u>spolv</u>.

NONCE AFFIX	TYPE	SUBTYPE	PLACEMENT	WORD CLASS	NORWEGIAN EXAMPLE	ENLGISH EXAMPLE
-i	Derivational	Descriptive noun	Back	Adj -> noun	Rar/raring	Weird/weirdo

Appendix L: Background questionnaire

1 Hva er ditt førstespråk?

Med førstespråk mener vi det språket (eller de språkene) du lærte hjemme fra tidlig i barndommen.

*Norsk * Norsk og engelsk * Norsk og annet/andre språk * Engelsk * Engelsk og annet/andre språk * Annet/andre språk*

Spørsmål 2-5 gjelder ikke førstespråk, kun andre språk du kan, som du har lært senere i livet enn helt tidlig barndom.

2 Dette/disse språkene forstår jeg når jeg leser og/eller lytter til dem:

3 Dette/disse språkene kan jeg holde en dagligdags samtale på:

4 Dette/disse språkene har jeg lært helt eller delvis i en formell kontekst:

Skole, språkkurs, eller lignende. Skriv ned alle språk det gjelder, uansett om du kan dem i dag eller ikke.

5 Dette/disse språkene har jeg lært KUN uformelt:

Ved hjelp av apper, venner og familie, eller lignende. Skriv ned alle språk det gjelder, uansett om du kan dem i dag eller ikke.

6 Hvor gammel var du da du begynte å lære engelsk?

Scale: 1-120

For spørsmål 7 og 8: Tenk over din gjennomsnittlige hverdag. Husk å tenke over alle språk du eventuelt bruker/leser/hører, ikke bare norsk og engelsk.

7 På en skala fra 0-100%, hvor mye av kommunikasjonen din (skriftlig og muntlig) skjer på engelsk?

Scale: 1-100

8 På en skala fra 0-100%, hvor mye av språket du leser og hører gjennom ulike medier er engelsk?

Eksempler på medier kan være musikk, film og TV, sosiale medier, spill, bøker, podcaster, aviser, osv.

Scale: 1-100

9 Hva er ditt hovedmål?

*Bokmål * Nynorsk*

10 Snakker du mer enn én dialekt?

Dette gjelder ikke imitasjon, men f.eks. om du har familie fra to steder i landet og slår om avhengig av hvem du snakker med.

*Ja * Nei*

11.1 Hvilken kategori hører dialekten din til?

Se bildet under for geografisk referanse.

Hvis du snakker flere dialekter, svar også på spørsmålet under.

*Troms- og finnmarksmål * Nordlig nordlandsk * Sørlig nordlandsk * Uttrøndersk * Inntrøndersk * Nordvestlandsk * Sørvestlandsk * Sørlandsk * Midtlandsk * Østlandsk*

11.2 Hvis du har flere dialekter, hvilken kategori hører den andre dialekten din til?

Hvis du ikke har to dialekter skal du ikke svare på dette spørsmålet.

Hvis du snakker flere enn to dialekter, velg de to du bruker mest.

*Troms- og finnmarksmål * Nordlig nordlandsk * Sørlig nordlandsk * Uttrøndersk * Inntrøndersk * Nordvestlandsk * Sørvestlandsk * Sørlandsk * Midtlandsk * Østlandsk*

12 Kjønn

*Kvinne * Mann * Ikke-binær/annet/ønsker ikke å svare*

13 Hvor gammel er du?

Scale: 1-120

14 Hva er din høyeste fullførte utdanning?

*Grunnskole * Videregående skole * Fagskole, fagbrev/svennebrev eller annen 1-2-årig utdanning etter videregående * Universitet/høyskole inntil 3 år (Bachelorgrad) * Universitet/høyskole 4 år eller mer (Mastergrad eller høyere) * Annet*

15 Studerer du eller har du studert språk på universitets- eller høyskolenivå?

*Ja * Nei*

16 Vil du si at du jobber med språk?

F.eks. som journalist, språklærer, forfatter, eller lignende.

*Ja * Nei*

17 Har du lærevansker eller diagnoser som kan ha påvirket din språklæring?

F.eks. nedsatt hørsel, dysleksi, autisme, eller annet.

*Ja * Nei*

Appendix M: Participation information

Vil du delta i dette masterprosjektet om språkkunnskap?

Formål

Dette er en undersøkelse som inngår i et masterprosjekt. Hovedmålet med prosjektet er å undersøke mulige sammenhenger mellom ulike typer språkkunnskap. Prosjektet skal også ta for seg eventuelle sammenhenger mellom de ulike typene språkkunnskap og ulike bakgrunnsfaktorer. Et sentralt mål i oppgaven er også å kartlegge hvorvidt testene du vil finne i denne undersøkelsen faktisk måler det de er ment å måle.

Forskningsdata fra denne undersøkelsen kan også komme til å bli benyttet i fremtidig forskning.

Hvem er ansvarlig for forskningsprosjektet?

Norges teknisk-naturvitenskapelige universitet (NTNU) er ansvarlig for prosjektet.

Hvorfor får du spørsmål om å delta?

Deltakelse i dette prosjektet er åpent for alle over 18 år som har norsk som førstespråk (det språket du lærte fra helt tidlig i barndommen) og engelsk som andrespråk (et språk du har lært senere enn helt tidlig i barndommen). Deltakere kan godt ha flere førstespråk og andrespråk, men norsk og engelsk må være blant dem, som beskrevet her. Undersøkelsen er åpen for alle som har lenken til nettsiden, og det er ønskelig at så mange som mulig deltar.

Hva innebærer det for deg å delta?

Hvis du velger å delta i prosjektet, innebærer det at du fyller ut denne undersøkelsen. Undersøkelsen er delt i to. Første del vil ta deg ca. 40 minutter. Det er frivillig å gå videre til andre del, som eventuelt vil ta deg ca. 30 min ekstra. Hvis du gjennomfører andre del kan du være med i trekningen av et valgfritt gavekort på inntil 500 kr. Deltakelse i trekningen er frivillig.

Undersøkelsen inneholder primært tester som skal måle ulike former for språkkunnskap, samt noen bakgrunnsspørsmål om deg og dine språkerfaringer. Eksempel på spørsmål som angår deg som person vil være alder, kjønn og utdanningsnivå. Ingen av spørsmålene vil innhente opplysninger som identifiserer deg direkte. Opplysningene vil bli registrert elektronisk.

Det er frivillig å delta

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Hvis du da kan identifiseres i datamaterialet vil alle dine personopplysninger bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket.

Innsamlingen av data vil skje anonymt, som vil si at det ikke registreres elektroniske spor som knytter deg som person til dine svar på spørreundersøkelsen. Deltakere vil ikke

kunne være gjenkjennbare i oppgaven, ettersom opplysningene fra spørreskjemaet kun brukes til statistiske formål. De som vil ha tilgang til opplysningene oppgitt i undersøkelsen er masterstudenten, Mari Karoline Wilhelmsen, og prosjektveileder, Anne Dahl.

Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?

Ingen personopplysninger vil lagres etter at prosjektet avsluttes, men forskningsdataene vil oppbevares i fullstendig anonym form.

Hva gir oss rett til å behandle personopplysninger om deg?

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra NTNU har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke opplysninger vi behandler om deg, og å få utlevert en kopi av opplysningene
- å få rettet opplysninger om deg som er feil eller misvisende
- å få slettet personopplysninger om deg
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger

Samtykke

Ved å fullføre første del av denne undersøkelsen og trykke 'send' samtykker du til deltakelse i dette prosjektet. Ingen av dine opplysninger vil bli lagret hvis første del av undersøkelsen ikke fullføres.

Hvis du har spørsmål til prosjektet, eller ønsker å vite mer om eller benytte deg av dine rettigheter, ta kontakt med:

Mari Karoline Wilhelmsen (student)

marikw@stud.ntnu.no

Anne Dahl (veileder)

anne.j.dahl@ntnu.no

Thomas Helgesen (NTNUs personvernombud)

thomas.helgesen@ntnu.no

Hvis du har spørsmål knyttet til NSD sin vurdering av prosjektet, kan du ta kontakt med NSD - Norsk senter for forskningsdata AS på epost (personverntjenester@nsd.no) eller på telefon: 53 21 15 00.

Med vennlig hilsen

Anne Dahl   Mari Karoline Wilhelmsen

(Forsker/veileder)   (Student)

Appendix N: Relevance for the teaching profession

The process of researching and writing this Master's thesis has left me with new knowledge and improved skills that will be relevant for my future in the teaching profession.

The knowledge that I have gained throughout working with the thesis will likely inform my future approach to teaching L2 English. The literature reviewed in this thesis has indicated that MLA, MLK and L2 proficiency may be related. This in turn indicates to me that explicit grammar teaching is not an outdated part of L2 teaching, since there is a possibility that students' L2 proficiency benefits from learning how to speak about language. This does not mean I will revert to the grammar-translation method of L2 teaching, but it has reminded me that grammar is a valid and valuable part of SLA, also within the current communicative approach to teaching English.

I also believe that the knowledge I have gained about the Norwegian and English grammatical systems can be beneficial in my formative assessment of students. Knowing how these grammatical systems compare and contrast, I may be better prepared for diagnosing errors made and challenges experienced by the pupils, in turn making me more prepared for providing the pupils with appropriate feedback and aiding their further SLA.

In terms of skills, working with this thesis has improved my ability to search for, read and understand a variety of sources. For one, this ability will aid me in my continued effort to stay updated on developments in the language learning and teaching literature. Additionally, in following the approach of teaching by the curriculum, not by the textbook, research skills will be an important aid in finding sources for developing relevant and engaging teaching materials.

Lastly, I take with me into teaching the experience of having had great supervision on this project, further inspiring me to aim to be a good communicator and collaborator with my colleagues, as well as a supportive and enthusiastic supervisor to my future pupils in their learning processes.