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Metalinguistic awareness in the multilingual EFL classroom: a study of grade 5–7 students in Norway

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ABSTRACT

This article compares metalinguistic awareness among emerging bilingual and multilingual learners of English in Norwegian primary school. Participants were 120 students in grades 5–7 (aged 10–13) attending mainstream English classes in Norway and were divided into three groups based on a linguistic background questionnaire: an L1 Norwegian group, a Multilingual group without English at home, and an English group with English at home. All participants completed a test of metalinguistic awareness (using sentences in English, with questions presented in both English and Norwegian), and a statistical analysis was then conducted to compare the performance of the different linguistic groups. While a simple comparison of means showed no significant differences between groups, a multiple regression controlling for grade level and academic achievement showed that linguistic group did significantly predict performance once these variables were accounted for, with the Multilingual group scoring higher than the L1 Norwegian group, and the English group scoring highest.

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Metalinguistic awareness; multilingualism; minority languages; third language acquisition; English as an additional language

Introduction

Greater metalinguistic awareness has often been touted as an advantage of speaking two or more languages (Cenoz, 2013; Hofer & Jessner, 2016), and it is seen as an asset when acquiring further languages (Hopp et al., 2020; McManus, 2019). While much research has shown a metalinguistic advantage for bi- and multilingual speakers, such benefits may not always be observed when one of the bilingual's languages is stigmatised or seen as lacking prestige (Montrul, 2012). In schools, teacher attitudes about multilingualism and about the students' heritage languages can also have an effect on whether students are able to draw on prior linguistic knowledge in learning additional languages (Aalberse et al., 2019; De Angelis, 2011).

As in many European countries, Norway has seen an increase in the number of immigrants over the past several decades. They bring with them a wide range of backgrounds

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with a huge variety of different languages spoken at home. This linguistic diversity is also present in school classrooms, particularly in more urban areas. Teacher education has yet to catch up with this demographic change, however, and recent research has shown that English teachers in Norway often feel unprepared to deal with linguistically diverse classrooms even when they themselves possess positive feelings about bi- or multilingualism (Krutatz & Torgersen, 2016; Lorenz et al., 2021; Šurkalović, 2014). Identifying areas in which teachers can bring students' full linguistic repertoires into the classroom is an important step towards implementing more multilingual pedagogies to benefit all students.

With this goal in mind, this study focuses on metalinguistic awareness in students acquiring English in the primary classroom in Norway, some of whom are emerging multilinguals and some of whom are emerging bilinguals with a majority-language (Norwegian) background. *Multilingual* here refers to students who already speak at least two languages (Norwegian as well as at least one other home language) and are acquiring English as at least a third language, encompassing those referred to as *heritage bilinguals* in linguistic research (Aalberse et al., 2019; Montrul, 2016) and *minority language speakers* (*minoritetsspråklig*) in the Norwegian educational context (Ministry of Children, Equality, and Inclusion, 2013). Because only some of the research on metalinguistic awareness shows higher levels among multilinguals, the present study examines metalinguistic awareness in the Norwegian school context through the following research question:

Do multilingual students acquiring English as an L3 in Norway score higher than their L1 Norwegian peers on a test of metalinguistic awareness?

By answering this question, we can gain a picture of the varying metalinguistic abilities that can be found in a single school population and contribute to knowledge of how students' pre-existing multilingualism may play a role.

Metalinguistic awareness as a concept

While definitions of metalinguistic awareness can differ in their particulars, what they have in common is the idea that metalinguistic awareness involves a focus on form above and beyond meaning. Thomas (1992, p. 531) describes it as 'an individual's ability to focus attention on language as an object in and of itself, to reflect upon language, and to evaluate it,' and Jessner (2014, p. 176) similarly states that it is 'the ability to focus on linguistic form and to switch focus between form and meaning.' That is, the language speaker can shift their attention from content and meaning to the form of language, so that it may be analysed.

In the field of metalinguistic awareness, terminology can be used inconsistently. One issue is that there are several different terms that sometimes appear to refer to the same thing, and another is that the same terms can be used by different researchers to mean slightly different things. There are also terminological differences between different fields of research: *language awareness* and *knowledge about language* have both been more associated with language teaching and teacher education contexts, while *metalinguistic awareness* or *metalinguistic knowledge* are more likely to appear in linguistics (Pinto et al., 1999). Jessner (2008, p. 359) notes that '[b]oth the creation of the adjective "metalinguistic" and its noun form "metalanguage" is rooted in linguistics'.

Additionally, some researchers include cognitive abilities related to bi- or multilingual processing in their definition of metalinguistic awareness or knowledge. Bialystok (1991)

sees metalinguistic awareness as being comprised of two main abilities: analysis of linguistic knowledge and control of linguistic processing. Analysis of linguistic processing involves the development of metalinguistic knowledge through which implicit knowledge becomes explicit, while control of linguistic processing refers more to executive control and the ability to focus attention. The present study is most concerned with what Bialystok (2001) and Roehr-Brackin (2018) call *metalinguistic ability*, or the ability to make use of knowledge *about* language, and *metalinguistic awareness*, or i.e. the ability to actively focus attention on the forms and explicit properties of language. *Metalinguage*, or technical terminology used to describe language, is also a key concept. Metalinguage is not necessary to be able to analyse the explicit properties of language, but it is a tool that can aid analysis. While these concepts are relevant to both monolingual and bi-/multilingual contexts, this study explores the question of how multilingualism relates to metalinguistic ability and metalinguistic awareness.

Metalinguistic awareness and bi-/multilingualism

Because metalinguistic knowledge is generalisable, the question of its role in acquiring additional languages is relevant. Some research has shown bilingual or multilingual advantages when it comes to metalinguistic awareness, although these advantages are not seen across the board. Baker (2017, p. 286) notes that ‘bilinguals whose both languages are relatively well developed have increased metalinguistic abilities particularly in those tasks that require selective attention to information.’ Some research has indicated that there is a bilingual advantage when it comes to cognitive aspects of metalinguistic awareness related to executive functioning (Bialystok & Viswanathan, 2009; Friesen & Bialystok, 2012). These advantages do not always appear to be present for aspects of metalinguistic awareness related to more linguistic factors like language-analytic ability, however. In a series of studies of children in bilingual immersion education programmes aged 7–11, Bialystok and Barac (2012) found that while degree of bilingualism appeared to predict better performance on executive functioning tasks, performance on the more linguistic tasks related to metalinguistic awareness was more closely linked with proficiency in the language of testing. Likewise, Spellerberg (2015) found a stronger link between metalinguistic awareness and proficiency in the testing language than between metalinguistic awareness and bi-/multilingualism (see section 2.2 for greater discussion of this study).

Previous research measuring metalinguistic awareness

A variety of different task types have been used to measure metalinguistic awareness, including metalinguistic labelling (relying on the use of metalanguage), error correction or grammaticality judgments, description or explanation tasks, and rule illustration tasks, to name a few (Roehr-Brackin, 2018). In addition, several specific tests have been designed to measure metalinguistic awareness.

The family of metalinguistic tests developed by Pinto et al. (1999) have been described by Jessner (2006) and Woll (2018) as the most comprehensive test or tool developed to systematically measure different aspects of metalinguistic awareness. Originally developed in Italian, it has been translated and validated in a variety of languages (Pinto,

2015) and consequently used in various contexts. The original tests are suitable for monolinguals, but Pinto et al. (1999) note that they can also be used with bilinguals (although bi-/multilingualism is not a focus of the original tests). The three metalinguistic ability tests are designed for different age groups: the MAT-1 for children aged 4–6, the MAT-2 for children aged 9–13, and the MAT-3 for adolescents and adults (where ‘MAT’ refers to ‘metalinguistic ability test’). One notable drawback is that both the MAT-2 and the MAT-3 rely heavily on the participant’s knowledge of metalanguage in order to satisfy the criteria for the highest number of points on metalinguistic questions.

Studies using the MAT-2 with multilingual populations include Hofer and Jessner (2016), who used an adaptation of it in a study examining the impact of early multilingual learning on metalinguistic awareness in South Tyrol in Italy. While German is the majority language in South Tyrol, participants for the study were recruited from Italian-medium schools in Bolzano. The participating students spoke L1 Italian and were learning L2 German and L3 English. The study compared two groups of fourth graders (with an average age of 9), with one group being enrolled in a multilingual programme while the other was enrolled in traditional Italian-medium programmes (both groups came from Italian-language primary schools). Students in the multilingual programme received subject instruction in both L1 Italian and L2 German. Hofer and Jessner’s (2016) adaptation of the MAT-2 was based on the original Italian language version. They found that the students in multilingual programmes performed significantly better than those enrolled in the traditional Italian-medium programmes on their metalinguistic awareness test (as well as tests assessing their proficiency in German and English).

Additionally, Spellerberg (2015) adapted the MAT-2 in Denmark, looking at metalinguistic awareness and overall academic achievement among mono-, bi-, and multilingual learners in lower secondary school (aged 14–16). Her version of the test was entirely in Danish (the majority language in her context). She found a significant correlation between metalinguistic awareness test score and school leaving exam results, indicating a correlation between performance on the metalinguistic awareness test and overall Danish proficiency. Her bi- and multilingual participants did not perform better on the metalinguistic awareness test than the monolingual Danish group, and in fact the monolingual group outperformed bi-/multilinguals with Danish at home, who outperformed the bi-/multilinguals without Danish at home. Performance on the test was also significantly correlated with academic achievement in non-language school subjects, and socio-economic status also played a role. She suggests that her Danish-language adaptation of the MAT-2 may be a better measure of Danish proficiency or metalinguistic awareness of Danish rather than metalinguistic awareness in general. This in turn supports the idea that the language of testing plays an important role in assessing multilingual populations.

Tellier (2013) assessed the metalinguistic awareness of children aged 8–11 in the UK, using a test of her own design in a classroom setting. Unlike the MAT-2 by Pinto et al. (1999), Tellier’s test features multiple languages, both natural and constructed. She found that bilinguals outperformed monolinguals on all but one of the eleven tasks included in the test.

Turning to the Norwegian context, most research on metalinguistic awareness in school-aged children has focused on minority language children acquiring Norwegian as a second language, whereas the effect of metalinguistic awareness in the English classroom has not been investigated to the same degree. Randen (2018) looked at the use of the

Ringeriksmaterialet (Lyster & Tingleff, 1996), a language awareness assessment tool designed to detect potential difficulties in reading and writing in 5–7 year-olds. The test is commonly used in Norwegian schools and is conducted exclusively in Norwegian, having originally been designed for monolingual Norwegian students. Her case study looked at three Russian-Norwegian bilinguals in first grade, using their results on the *Ringeriksmaterialet* as well as documentation of their reading and writing skills in Norwegian and Russian, and audio recordings carried out during the administration of the test. Her study indicated that *Ringeriksmaterialet* failed to accurately assess the literacy skills of these bilingual students, in that their results on the test suggested that they would have difficulty acquiring literacy skills, while her independent assessment of their actual writing skills in Norwegian and Russian indicated that all three participants could read and write simple words in Norwegian at the expected level for their ages, and two of the three participants could do the same in Russian, meaning they were already acquiring literacy skills in two different alphabets. One of the implications of the results is that a test designed for a monolingual population can fall short when used with bi- or multilingual participants.

Other factors: English in the Norwegian school context and teacher metalinguistic awareness

In Norway, the role of metalinguistic awareness in language learning is relevant given that instruction in English is compulsory from the first grade, while other foreign languages are introduced as options in lower secondary school, when students' reflective thinking and metalinguistic abilities are more developed (Gombert, 1992; Roehr-Brackin, 2018). While the number of instruction hours in English is low for the first several years (Dahl & Vulchanova, 2014), English has a high status in Norwegian society, and many students gain significant exposure to English outside the classroom through games and other media (Sunde, 2017), even from as early as 9 years old (see Sylvén & Sundqvist, 2012 on the similar Swedish context for learners aged 11–12). Previous research has shown that teachers do not necessarily make use of students' knowledge of other languages in the English classroom, even when the teachers hold positive views about multilingualism, and in fact they may not even be aware of their students' full range of linguistic resources (Brevik et al., 2020). Teaching tends to be rooted in a monolingual framework, with many teachers feeling like they need to maximise exposure to the target language by using as much English as possible (Brevik et al., 2020). It also tends to be based on communicative language teaching, with an emphasis on communicative skills and little explicit grammar instruction (Frøisland et al., 2023).

Another point worth mentioning is that teachers' own metalinguistic awareness likely plays a role. Research on students in teacher training programmes from a variety of contexts has shown a gap between student teachers' perceived knowledge of grammar (what student teachers think they know) and their actual declarative knowledge of grammar in the language(s) they are training to teach (Borg, 2003; Nygård & Brøseth, 2021; Sangster et al., 2013), or alternately that student teachers may actually lack confidence in their knowledge of grammar or even consider it irrelevant (Döring, 2020; Elsner, 2020). While explicit knowledge of grammar alone is only one component of metalinguistic knowledge, this could potentially impact teachers' ability to activate their students' metalinguistic knowledge in the classroom. Even in contexts where teachers hold positive beliefs

about grammar teaching that incorporates and develops reflective thinking, teachers may still lack the actual linguistic knowledge that would allow them to do this in their own classrooms (van Rijt et al., 2019). The area of teacher metalinguistic awareness is one that should continue to be explored in conjunction with research on young learners' metalinguistic awareness.

Overall, the previous research suggests that metalinguistic awareness aids language learning, and while bilingualism or multilingualism may lead to higher levels of metalinguistic awareness, this is not always observed. In Norway, metalinguistic awareness has not been examined in the context of the English classroom to the same extent as within the field of Norwegian as a second language. Additionally, the language of testing plays a role on the results obtained for bi- and multilingual populations. This study thus examines metalinguistic awareness in the English classroom in Norway using a novel bilingual approach to an existing test of metalinguistic awareness.

Methods and materials

Participants

Participants were 120 students in grades 5–7 (aged 10–13) in mainstream English classes at a primary school in Norway. Information and consent forms were distributed to all students in grades 5–7 at the participating school with the help of the teachers. A total of 176 students were approached to participate. All students received the forms in Norwegian and English, and additional copies were also provided in students' other home languages where applicable. The project and the consent forms were approved by the Norwegian Centre for Research Data (NSD) prior to distribution. Only students whose parents provided written consent participated in the study.

Prior to the administration of the test, a language background questionnaire was given to the students during their English class. This was used to assign students to one of three groups: an L1 Norwegian group ($N=82$), a Multilingual group ($N=26$), and an English group ($N=12$). The language background questionnaire took the form of a 'language passport,' a stapled booklet with a cover that mimicked an actual passport, and it was based on activities published in *Language Explorers: An activity book to learn about the languages of the world* (La Morgia, 2018). The language passport included questions about which languages the students spoke at home, which languages they could understand, speak, or write in, and which languages were used by their family members.

The L1 Norwegian group was made up of L1 Norwegian speakers acquiring English as an L2 at school (making them emerging bilinguals). These students reported using only Norwegian (the majority language) at home, although many acknowledged being able to read or understand some Swedish or Danish due to the similarities between the Scandinavian languages. The Multilingual group was heterogeneous, with different L1s being used in the home, and they were acquiring English as (at least) an L3 (making them emerging multilinguals). The English group consisted of students who reported using English at home, but there was also heterogeneity within this group, as English was sometimes present alongside other languages in the home, and the language background questionnaire did not collect data on whether their parents or other family members were L1 speakers of English. The English group was not intended to be a control group, but

Table 1. Overview of participating students.

Grade	L1 Norwegian	Multilingual	English	Total students
5	30	10	4	44
6	24	6	3	33
7	28	10	5	43

Table 2. Overview of language groups represented in the Multilingual and English groups.

Language family	No. of students
Afroasiatic	5
Austronesian	1
Baltic	2
Finno-Ugric	3
Germanic	7
Indo-Aryan	1
Romance	4
Slavic	8

rather was included in order to reflect the actual linguistic makeup of the school. Norwegian was the primary language of schooling for all three groups. An overview of the participants by grade and linguistic group is presented in [Table 1](#). Among the Multilingual and English groups, 20 different home languages were represented. [Table 2](#) provides an overview of the language families represented as well as the number of students who reported a language from that family as a home language.

The test: adapted MAT-2

An adapted version of the English translation of the MAT-2 (Pinto et al., 1999) was used for this study. The MAT-2 is designed for use with children between the ages of 9–13, in line with the participants of this study who were aged between 10 and 12 at the time of administration. The original MAT-2 is made up of six parts, corresponding to metalinguistic ability in the following areas:

- (1) Comprehension
- (2) Synonymy
- (3) Acceptability
- (4) Ambiguity
- (5) Grammatical function
- (6) Phonemic segmentation

In order to create a pencil-and-paper test that could be administered within one 60-minute class period, a selection of items was chosen from parts 1–3 (Comprehension, Synonymy, and Acceptability) and part 5 (Grammatical function). Parts 4 (Ambiguity) and 6 (Phonemic segmentation) were excluded both due to time constraints and to the potential difficulty given that the main test language was English. In the original test, part 4 deals with both semantic and structural ambiguity, but many students might be familiar with only one meaning of the English words, while part 6 deals with phonemic segmentation and students may not have been aware of how certain

English words were pronounced. The adapted MAT-2 thus consisted of four parts. In addition to the shortening of each part due to time constraints, some vocabulary was also replaced in order to use words the students were more likely to be familiar with or understand, e.g. replacing *nightingales* with *songbirds*.

The general format of the test consisted of a sentence or pair of sentences in English followed by a Linguistic Question (LQ) and a Metalinguistic Question (MLQ) referring to the LQ just answered. Pinto et al. (1999, p. 54) refer to this first question type as ‘work[ing] upon the knowledge of rules of language use’ while they describe the MLQ as ‘a request for an explanation of the first answer,’ in which the student is meant to use their analytical skills to explain how they arrived at the answer they gave for the LQ. While the original MAT-2 is presented in a monolingual format, the adapted test used in this study took a bilingual approach, based on previous research that demonstrates the importance of the language of testing. While the sentences were all presented in English, the LQs and the MLQs were given in both English and Norwegian. All instructions were presented in both languages, and students were explicitly told that they could write responses in either language. This bilingual approach accounted for the fact that English and Norwegian were languages shared by all participants, but it did not account for other languages in the participants’ linguistic repertoires.

Following the original scoring guide for the MAT-2, LQs were scored as either correct (1 point) or incorrect (0 points). The MLQs were scored on a scale, although this was adapted from a 0–2-point scale in the original to be a 0–3-point scale in this study. The original MAT-2 makes no distinction between blank answers and the lowest tier of the scale, meaning that students could provide a response and still receive zero points. For this study, based on the results of the pilot (see below), the scale was expanded so that a blank answer received zero points, while the lowest number of points given if a student provided a response was 1 point. Students received a point for attempting to respond to the question even if the response was not relevant. In other words, the original scale of 0, 1, or 2 points was transposed to 1, 2, or 3 points so that 0 points corresponded to a blank response. Otherwise, the original scoring criteria were followed. An overview of the number of questions and possible points for each section is provided in Table 3. The maximum possible total score (LQ + MLQ) was 107 points.

Data collection and analysis

The adapted MAT-2 was piloted at a different school with a grade 6 class ($N = 15$). The decision to expand the scale for scoring MLQs was made based on students’ performance in the pilot, which showed a floor effect based on the overall low performance on MLQs.

Table 3. Number of questions and possible points for each part by question type.

	Number of Linguistic questions (LQ)	Maximum possible LQ score	Number of Metalinguistic questions (MLQ)	Maximum possible MLQ score
Part 1 (Comprehension)	6	6	6	18
Part 2 (Synonymy)	5	5	5	15
Part 3 (Acceptability)	17	17	9	27
Part 4 (Grammatical function)	4	4	5	15
Total	32	32	25	75

The expanded scale allowed for a distinction between students who attempted to respond and those who provided no response at all.

The test was administered to the participants during a regular 60-minute English lesson with the teacher present. The instructions were read out loud in English by the author, and then repeated in Norwegian by the teacher. Students were allowed to ask questions about vocabulary and receive translations of any of the English words that were unfamiliar to them, or to clarify test questions.

After the test was administered to all participants, each test was independently scored by two raters (the author and a graduate research assistant) due to the subjective nature of assigning scores to MLQs. Spearman's correlation coefficient was calculated for both the total test score ($r_s = .957, p < .001$) as well as the score for metalinguistic questions only ($r_s = .927, p < .001$), indicating strong inter-rater reliability. The subsequent statistical analysis was conducted with IBM SPSS version 27 (IBM Corp., 2020).

In order to answer the research question of whether multilingual students perform better than their L1 Norwegian peers on the test of metalinguistic awareness, a series of analyses were carried out. First, the mean total scores achieved by each linguistic group were compared using a one-way between-groups ANOVA. Next, a one-way between-groups ANOVA was carried out to compare each linguistic group's mean scores on only the LQs and only the MLQs. Finally, a multiple linear regression was carried out to assess whether being multilingual predicted higher performance on the test after controlling for grade level and academic proficiency.

For the latter variable, students' performance on Norway's 5th grade national tests was used to calculate an academic proficiency score. Standardised tests in reading, math, and English are carried out in public schools in grades 5 and 8 (with the reading and math tests being conducted in Norwegian). All participants in this study had completed the 5th grade national tests, although test scores in English were unavailable for the grade 5 participants, so the English test was excluded. The academic proficiency score was thus calculated as the mean of each student's scaled score on the reading and math tests.

The results of these analyses are presented in the next section, followed by a discussion of the results.

Results

Total score means

As shown in Table 4, the mean score increases with grade level, which we might expect. A one-way between-groups ANOVA showed that the difference between grade levels was statistically significant ($F(2,117) = 8.812, p < .001$). Games-Howell post hoc tests revealed that grades 6 and 7 both performed significantly better than grade 5, while the difference between means for grade 6 and grade 7 was not statistically significant, as shown in Table 5.

Table 4. Mean score by grade.

Grade	Mean score	Std. deviation	<i>N</i>
5	46.636	12.487	44
6	50.500	10.058	33
7	54.000	11.997	43

Table 5. Results of post hoc tests of group mean differences by grade level.

		Mean difference	Std. error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Grade 5	Grade 6	-6.864	2.571	.025	-13.012	-.716
	Grade 7	-10.364	2.625	< .001	-16.626	-4.102
Grade 6	Grade 7	-3.500	2.532	.355	-.9558	2.558

Table 6. Mean total score by linguistic group.

(1) Linguistic Group	Mean score	Std. deviation	<i>N</i>
L1 Norwegian	48.268	12.587	82
Multilingual	50.846	10.994	26
English	52.375	14.392	12

While Table 6 shows that the mean score of the Multilingual group is higher than that of the L1 Norwegian group, and the English group has the highest mean score of all, a one-way between-groups ANOVA revealed that there were no statistically significant differences between the means ($F(2,117) = .847, p = .431$). With the research question in mind, this means that based on the group mean scores alone, there was no significant difference between the L1 Norwegian group and the Multilingual group. Likewise, the English group did not perform significantly differently than either of the other groups.

Mean scores by question type

In order to gain a picture of students' performance on the different question types, Table 7 provides a summary of mean scores by linguistic group for the LQs, while Table 8 provides a summary of mean scores by linguistic group for the MLQs. These are worth examining separately due to differing goals of the LQs versus the MLQs.

Overall performance on the LQs was high, as Table 7 shows, with group means ranging from around 23.5–25 points out of a maximum possible score of 32. The differences in group means were not statistically significant ($F(2,117) = .903, p = .408$), and the maximum score for each group either approached or reached the maximum possible score. This indicates that students were able to display target-like linguistic knowledge of the English sentences around 75% of the time on average.

Table 7. Mean LQ score by linguistic group.

(2) Linguistic Group	Mean score	Std. deviation	Minimum	Maximum	<i>N</i>
L1 Norwegian	23.585	5.799	3.5	32	82
Multilingual	25.173	4.572	13	31	26
English	24.750	6.070	9.5	31	12

Table 8. Mean MLQ score by linguistic group.

(3) Linguistic Group	Mean score	Std. deviation	Minimum	Maximum	<i>N</i>
L1 Norwegian	24.683	7.290	7	39.5	82
Multilingual	25.673	7.200	14.5	40.5	26
English	27.625	8.945	11	43	12

Performance on the MLQs was lower across the board, as shown in Table 8, with group means ranging from 24.5–27.5 points out of a maximum possible score of 75. Again, the difference between group means was not statistically significant ($F(2,117) = .887, p = .414$). In general, students were much less able to demonstrate explicit metalinguistic knowledge at a high level even when they correctly answered LQs. The mean scores indicate that responses scoring lower on the 0–3-point scale were much more frequent than scores measuring higher, and in fact there were very few 3-point responses.

Linguistic group membership as a performance predictor

In order to go beyond the simple comparison of group means, data were fitted to a multiple linear regression model to predict total scores with grade level, academic proficiency score, and linguistic group as variables.

Grade level was either 5, 6, or 7, depending on the students' current grade at the time the data were collected. Academic proficiency score was the average of each participants' scaled scores on the 5th grade national tests in reading and math. Linguistic group membership was either L1 Norwegian, Multilingual, or English as described in the methods section. 5th grade national test scores were unavailable for 7 students from the L1 Norwegian group, 10 students from the Multilingual group, and 2 students from the English group, who were therefore excluded from the multiple regression analysis. The adjusted group totals for the following analysis are thus: L1 Norwegian ($N = 75$), Multilingual ($N = 16$), and English ($N = 10$).

A two-step hierarchical regression model was used. The initial model included grade and academic proficiency as variables, followed by a model that also included linguistic group membership (L1 Norwegian was set as the reference level, and thus does not appear in Tables 9–10). The results of the second model indicate what proportion of variance can be explained by linguistic group after the other variables are controlled for.

As shown in Table 9, a significant regression equation was found for both the first model ($F(2,98) = 21.485, p < .001$) with an R^2 of .314, and the second model ($F(4,96) = 16.193, p < .001$) with an R^2 of .416. Grade level, academic proficiency, membership in the Multilingual group, and Membership in the English group all added statistically significantly to the prediction, $p < .005$, as seen in Table 10. Model 2 showed that inclusion of the linguistic groups accounted for an additional 10% of variance after grade level and academic proficiency were accounted for. In other words, when controlling for other factors, linguistic group membership was a significant predictor of performance on the adapted MAT-2 used in this study, where membership in the Multilingual group or English group predicted a higher score than membership in the L1 Norwegian group.

Table 9. Model summary of hierarchical regression analysis for variables predicting total score (LQ + MLQ).

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate	Change Statistics				
					ΔR^2	F Change	df1	df2	Sig. F Change
1	.560 ^a	.314	.300	10.2963	.314	22.438	2	98	<.001
2	.645 ^b	.416	.392	9.5988	.102	8.380	2	96	<.001

a. Predictors: (Constant), academic proficiency, grade.

b. Predictors: (Constant), academic proficiency, grade, English group, Multilingual group.

Table 10. Coefficients for variables predicting total score (LQ + MLQ).

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	p-value
		B	Std. Error			
1	(Constant)	-16.379	9.947		-1.647	.103
	Grade	6.191	1.225	.423	5.055	<.001
	Academic proficiency	.551	.131	.352	4.209	<.001
2	(Constant)	-22.965	9.423		-2.437	.017
	Grade	6.380	1.143	.436	5.582	<.001
	Academic proficiency	.610	.123	.391	4.965	<.001
	Multilingual group	7.826	2.663	.233	2.939	.004
	English group	10.571	3.240	.258	3.262	.002

a. Dependent Variable: Total score.

This allows for a much more detailed picture than the comparison of group means alone, and the implications will be discussed in the following section.

Discussion

While upon initial examination, the mean scores between linguistic groups showed no statistically significant differences, a more nuanced analysis controlling for grade level and academic achievement did show that linguistic group was a statistically significant predictor of performance. Students from the Multilingual group were more likely to perform better than their L1 peers and students in the English group were more likely to perform better than both groups when participants were matched on the other variables. While the performance of the English group is not a surprise, given their greater exposure to English outside the classroom, it was not a given that students in the Multilingual group would outperform their L1 Norwegian peers. This indicates that participants' knowledge of other languages was likely an advantage when it came to their performance on the MAT-2. That being said, because this advantage only emerged after controlling for grade level and academic proficiency, with no significant difference between the total score means by each linguistic group, any multilingual advantage is unlikely to be visible to classroom teachers. The implications for classroom practice are discussed below.

Notably, these results contrast with the results found by Spellerberg (2015) in Denmark, in which monolingual Danish speaking students outperformed their peers with Danish and at least one minority language at home, who in turn outperformed the group without Danish spoken at home on a Danish-language adaptation of the MAT-2 (although the difference between the latter two group was not significant). Spellerberg posited that conducting the test in Danish, the majority language, could have played a role in these results. To try to avoid this issue, the present study took a bilingual approach to adapting the MAT-2, with English being the main language of the test (the target language of the classroom rather than the majority language), but all questions being presented in both English and Norwegian with the option to use either language for responses. This decision could have played a role in the results obtained, although this is difficult to say with certainty given the other differences between the two studies, including that Spellerberg's participants were slightly older.

The results of this study do provide support for previous research which has shown higher levels of metalinguistic awareness among bi- and multilingual populations, such

as the studies carried out by Hofer and Jessner (2016) and Tellier (2013). Nonetheless, performance on the MLQs was not very high overall, and the low frequency of 3-point responses indicates that the students used very little metalanguage in their analyses for the MLQs, even when some analysis was present in the responses. The low use of metalanguage is in line with typical English instruction in Norway, where the communicative approach to language teaching (which often de-emphasises a focus on form) has been dominant for several decades.

An additional consideration worth discussing is the exclusion of 10 out of 26 students from the Multilingual group from the linear regression analysis due to the unavailability of 5th grade national test scores. Generally speaking, the 5th grade national tests are obligatory, but students who receive special education or special language training for Norwegian (*særskilt språkopplæring*) can be exempted. The latter group is made up of students whose Norwegian language skills still need support even though they attend mainstream classes. These students may or may not have had interrupted schooling or they may simply be newer to Norway than their peers, but receiving special language training for Norwegian indicates that they have a lower level of Norwegian proficiency than their peers. This is reflective of the diversity of experiences that students (and especially multilingual or minority language students) bring to the classroom, and teachers should be sensitive to how these experiences affect students' language learning.

While there was no wholesale advantage for the students in the Multilingual group, the advantage that appeared after controlling for other factors supports the idea that multilingual students' metalinguistic awareness could be a resource in the classroom. When it comes to classroom practice, there is an opportunity in the Norwegian context (and other contexts that emphasise communicative language teaching) for more instruction that focuses on developing the reflective and analytic skills associated with metalinguistic awareness in the English classroom. In particular, drawing on students' full linguistic repertoires would aid in developing the specific type of metalinguistic awareness that Jessner (2018) terms multilingual awareness. This has the potential to not only benefit students with knowledge of minority languages, but all students in the classroom, as it could make use of students' knowledge of Norwegian in addition to other home languages. Crosslinguistic comparison between English, Norwegian, and other languages that the students know has the potential to support the development of metalinguistic and analytic abilities that will in turn support students' acquisition of English. These abilities would be useful not only in the English classroom, but also in additional foreign language learning at the secondary school level, where the curriculum for foreign languages (FSP01-03) explicitly states that 'having knowledge about language and exploring one's own language learning improves the ability of the pupils to learn and understand language' and '[b]y transferring their linguistic knowledge and language learning experiences from other languages they know and are familiar with, learning becomes more effective and meaningful' (Norwegian Directorate for Education and Training, 2020). Experimental classroom studies incorporating multilingual teaching that develops students' metalinguistic skills will be an important next step in that direction.

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