EPREUVES STANDARDISÉES

LITERACY ACQUISITION IN GERMAN OR FRENCH IN THE PILOT PROJECT *"ZESUMME WUESSEN"*

INTERMEDIARY ÉPSTAN REPORT ON STUDENT CHARACTERISTICS, ACHIEVEMENT, MOTIVATION, AND PARENTAL SUPPORT

Joanne Colling, Caroline Hornung, Pascale Esch, Anne-Louise Hellwig & Sonja Ugen

12.06.2025

mni.lu | UNIVERSITY OF LUXEMBOURG
Luxembourg Centre for Educational Testing (LUCET)

• • •

Correspondence to:

Luxembourg Centre for Educational Testing (LUCET)

To cite as:

Colling, J., Hornung, C., Esch, P., Hellwig, A.-L. & Ugen, S. (2025). Literacy Acquisition in German or French in the Pilot Project "*zesumme wuessen*" – Intermediary ÉpStan Report on Student Characteristics, Achievement, Motivation, and Parental Support. Luxembourg Centre for Educational Testing (LUCET).

Acknowledgements:

We thank all children, parents, and teachers for their participation and support in the ÉpStan data collection. We also thank the entire ÉpStan team for the collective effort in the organisation and logistics of the data collection as well as in the test development.

Luxembourg Centre for Educational Testing (LUCET)

University of Luxembourg

Faculty of Humanities, Education and Social Sciences

11, Porte des Sciences

L-4366 Esch-sur-Alzette

TABLE OF CONTENTS

INDEX OF FIGURES

INDEX OF TABLES

1. INTRODUCTION

Luxembourg's student population is characterised by a high socioeconomic, cultural and linguistic diversity with a high percentage of both primary (68 %) and secondary school students (66 %) speaking a different language than Luxembourgish at home (SCRIPT & MENJE, 2024). National and international studies have repeatedly shown that students with a low socioeconomic status (SES) and/or students speaking a language other than Luxembourgish (main language of instruction in Cycle 1) and/or German (main language of instruction in Cycles 2-4) at home, are more likely to struggle academically when following the Luxembourgish curriculum (Boehm et al., 2016; Hadjar et al., 2018; Hornung et al., 2021).

The Luxembourg School Monitoring Programme "*Épreuves Standardisées*" (ÉpStan) consists of standardised achievement test that assess academic achievement in selected key areas of education, along with student questionnaires that evaluate students' academic motivation and wellbeing as well as parent questionnaires providing information on the student's background (e.g., socio-economic status and parental support). The ÉpStan are administered every autumn, at the beginning of each learning cycle (C2.1, C3.1, and C4.1 in primary schools as well as grades 7 and 9 in secondary schools) to monitor whether the learning goals of the previous learning cycle have been achieved.

Originally, the ÉpStan have been designed for all public and private state-subsidized schools following the Luxembourgish curriculum, in which the language of literacy acquisition and instruction in primary schools is German. Since 2022, the Luxembourg Centre for Educational Testing (LUCET) has been working on extending the ÉpStan to evaluate recent policy reforms allowing alternative literacy acquisition and/or the selection of the main language of instruction within the Luxembourgish school system. One example is the "zesumme wuessen" pilot project, which allows students and their parents to choose between German and French as the main language of literacy acquisition. At the start of the 2022/23 school year, the literacy pilot project was launched by the Ministry of Education in *Cycle 1.2* (final year of *Éducation Préscolaire*) of **Schoul Uewerkuer** (*École fondamentale de Differdange*), **Schoul Deich** (*École fondamentale de Dudelange*), **Fielser Schoul** (*École fondamentale de Larochette*) and **Nelly Stein Schoul** (*École fondamentale de Schifflange*). In the **Nelly Stein Schoul**, the pilot project was, in addition, simultaneously launched in Cycle 2.1 (first year of primary education). Consequently, the LUCET has been gradually extending the existing achievement tests and questionnaires to enable the participation of students acquiring literacy in French within the framework of this pilot project, following the cohort's progression through the educational system.

The results of the first full "zesumme wuessen" cohort (2023/24) that participated in the ÉpStan were published in a comprehensive policy report (Colling et al., 2024). In addition to presenting academic and moticational achievements, the report provides detailed background information on the

educational context, the school monitoring instruments, the methodology and statistical analyses. It also discusses the statistical and methodological limitations associated with the project's implementation.

The present intermediary report provides an overview on the academic and motivation outcomes of the second full "zesumme wuessen" cohort that attended C2.1 in the school year 2024/25. The next full policy report will include the first longitudinal data, as the initial cohort (from 2023/24) will participate in the ÉpStan assessment in C3.1 in autumn 2025.

2. RESULTS

With questionnaire data collected from students and their parents (or legal representatives) at the primary school level, the ÉpStan encompass important information on individual student background characteristics (e.g., gender, SES, language(s) spoken at home, and migration background). In a first step, the present report provides an overview on how the C2.1 student population of the pilot project classes is composed in terms of individual background characteristics (ALPHA-French and ALPHA-German group) and how it compares to the two statistically computed reference groups as well as to the full national cohort of the ÉpStan 2024/25 following the Luxembourgish curriculum.

2.1 INDIVIDUAL STUDENT BACKGROUND CHARACTERISTICS

The results presented in this report are based on representative cross-sectional data from the full cohort of the ÉpStan 2024/25, including all C2.1 students following the Luxembourgish curriculum (*N* = 5787) and students participating in the pilot project "zesummen wuessen" (*N* = 90). As it can be seen in *Table 1*, within the pilot project, *N* = 42 students are learning to read and write in German (ALPHA-German group) and *N* = 48 students in French (ALPHA-French group). *Table 1* offers an encompassing overview on the sociodemographic background characteristics of the five student groups presented in the subsequent result chapters (for details see 2.3.*1* in Colling et al., 2024).

When looking at individual student background characteristics such as for example **socio-economic status** (SES; expressed as Highest International Socio-Economic Index of Occupational Status, HISEI-index in *Table 1*), **migration background** (percentage of native students) and **languages spoken at home,** it becomes apparent that the ALPHA-French and the ALPHA-German group taking part in the pilot project are both considerably differing from their peers at the national level following the Luxembourgish curriculum. With a mean HISEI value of 47 (ALPHA-French group) and of 44 (ALPHA-German group), the student population in the pilot project is ranging below the mean HISEI of their peers following the regular curriculum at the national level (mean HISEI of 52). Similar differences can be observed when looking at the share of native students (19 %) and of students with a Luxembourgish/German language background (12 %) in the ALPHA-French group compared to a considerably higher share at the national level (i.e., 40 % and 41 %, respectively). Also, regarding

gender, student groups differ; more female students are part of the ALPHA-German (62 %) and the ALPHA-French group (58 %) compared to the national level (48 %).

Table 1 – Detailed Sample Description of the ÉpStan Cohort for the 2024/25 School Year

					Language background		
	N	HISEI (M)	% female	% natives	% Lux/German	% French	% Portuguese
"zesumme wuessen"							
ALPHA-French group	48	47	58 %	19 %	12 %	27 %	52 %
ALPHA-German group	42	44	62 %	40 %	43 %	12 %	17 %
Regular curriculum							
ALPHA-French reference group	240	46	63 %	18 %	10 %	26 %	55 %
ALPHA-German reference group	210	44	63 %	41 %	45 %	11 %	16 %
National level	5787	52	48 %	40 %	41 %	23 %	21 %

Note. *N* = Number of students. HISEI = Highest International Socio-Economic Index of Occupational Status.

Considering that both national and international research studies have repeatedly indicated that student background characteristics (e.g., SES, gender, migration and language background) are related to academic achievement and learning success, two reference groups were computed by the means of propensity score matching (for details see chapter *2.3.1* in Colling et al., 2024[1]), whose individual student background characteristics are closer to the ALPHA-French and the ALPHA-German group (see *Table 1*), allowing more valid statistical comparisons.

2.2 STUDENTS' CONTACT WITH SELECTED LANGUAGES IN DIFFERENT CONTEXTS

In Luxembourg, students encounter multiple languages in various contexts due to the multilingual nature of both school and family environments. In 2024/25, the ÉpStan parent questionnaire investigated home language activities of C2.1 students by asking parents to indicate with which languages their child comes in contact within the family, with friends, and in the context of media use (i.e., stories, audio plays and movies). With the options being Luxembourgish, German, French, Portuguese, English and other languages, the parents were invited to indicate all the languages their child is regularily exposed to.

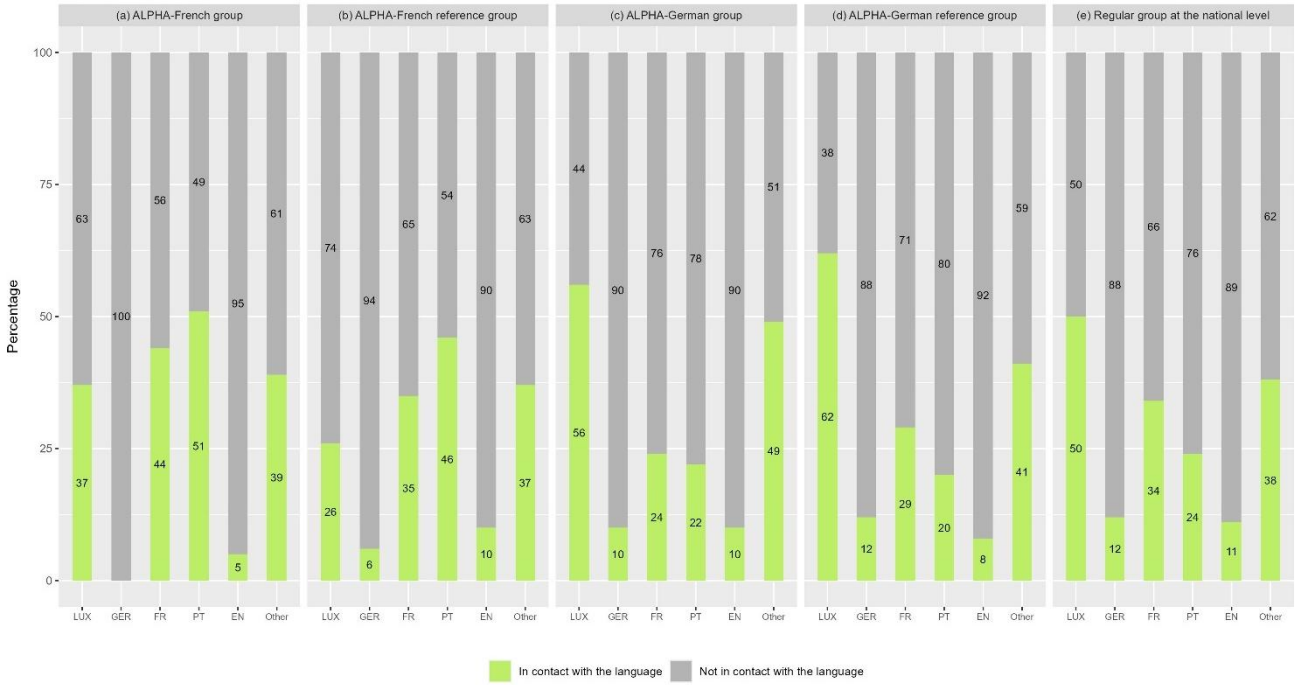
Figure 1 illustrates the **language contact within the family** for the five student groups of interest. The green bars express the percentages of students who are in contact with a certain language, whereas

[1] Please be aware that it is not possible to compare cohort 1 (2023/24) and cohort 2 (2024/25) directly as the there are a number of disparities in terms of background language and SES.

the grey bars indicate the share of students who are not in contact with a certain language on a regular basis.

Looking at the ALPHA-French group, Portuguese and French emerge as the two languages to which students were most prominently exposed within the family context (51 % and 44 %, respectively). With Luxembourgish and German on the other hand, students from the ALPHA-French group are less frequently in contact within the family (37 % and 0 %, respectively). This pattern can also be observed for the ALPHA-French reference group. In both the ALPHA-German and its reference group, the students are predominantly exposed to Luxembourgish in the family context with 56 % and 62 %, respectively.

Figure 1 – Language Contact within the Family Expressed in Percentages



Note. LUX = Luxembourgish. GER = German. FR = French. PT = Portuguese. EN = English.

Looking at the students' **language contact with their friends**, Luxembourgish is for all five groups the language that they are most frequently in contact with on a regular basis (ranging from 81 % at the national level to 86 % in the ALPHA-German reference group). This high prevalence indicates that Luxembourgish is the main language of communication for students of different language backgrounds, irrespective of whether they are participating in the pilot project or following the regular curriculum. Of note, considering that 85 % of the ALPHA-French and the ALPHA-German students are regularly using the Luxembourgish language when in contact with their friends underlines that Luxembourgish remains the main language of communication within the pilot project.

The languages used for **storytelling and reading aloud** align with those most frequently encountered by students within their families. Students of the ALPHA-French group are mainly being told (or read) stories in French (63 %) and Portuguese (46 %), whereas Luxembourgish (10 %) and German (20 %) are less frequently used by their parents. Although French is less predominantly used (45 %) in the ALPHA-French reference group, a similar pattern of results can overall be observed. By contrast, Luxembourgish (51 %) and German (41 %) are predominantly used in the ALPHA-German group. A comparable pattern arose for audio usage and watching movies. For an illustration of the findings for the students' language contact with their friends and for storytelling, please see the *Annex* of the present report.

2.3 ACADEMIC ACHIEVEMENT IN MATHEMATICS

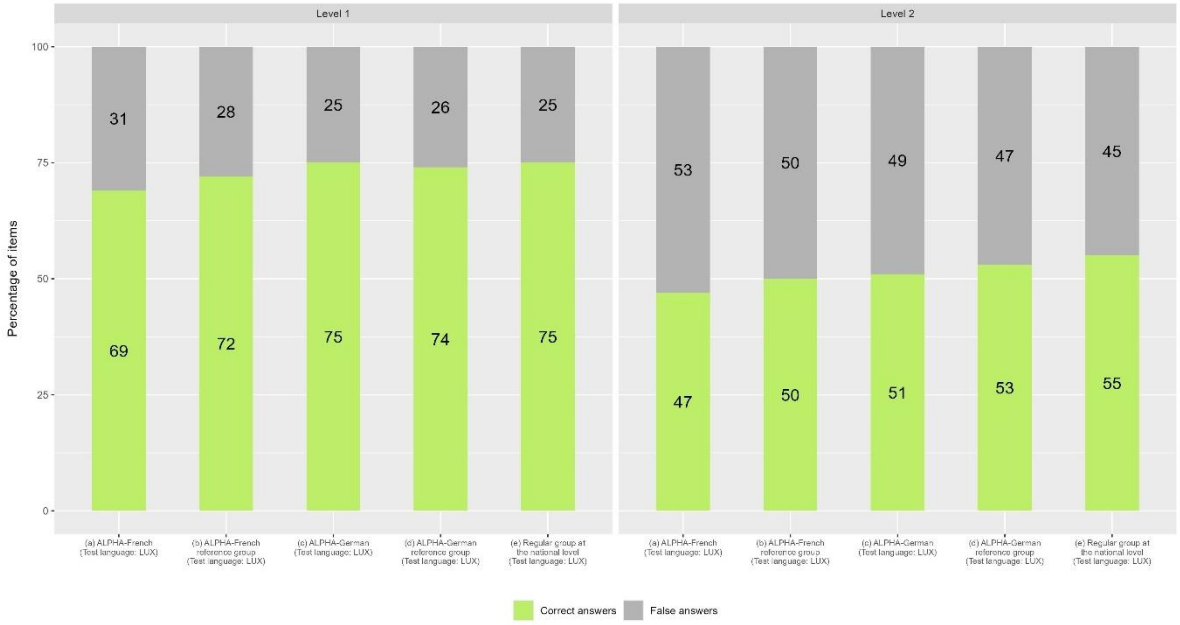
As described in more detail in Colling et al. (2024), the ÉpStan achievement tests are partly assessing whether the education standards of the previous learning cycle (MENFP, 2011) have been achieved by the students in the respective grade. The ÉpStan administered in C2.1 assess whether the education standards of *Cycle 1* have been achieved. Since the main language of instruction in *Cycle 1* is Luxembourgish, the ÉpStan mathematics test has been administered in Luxembourgish to the C2.1 students of all five groups. In line with the national education standards (*Plan d'Études*), difficulty level 1 refers to the *Niveau Socle* of *Cycle 1* and level 2 refers to the *Niveau Avancé*. In the following figures, the green bars indicate the percentage of items that students answered correctly in the respective achievement test, whereas the grey bars indicate the percentage of items for which the students gave false or no answers[2].

Figure 2 depicts the academic achievement results in mathematics split by the two theoretical levels of difficulty. Looking at difficulty level 1 (displayed in the left panel of *Figure 2)*, students of all five groups answered approximately 70 % of the mathematics items correctly, ranging from 69 % in the ALPHA-French group to 75 % in the ALPHA-German group and at the national level. With regard to the more difficult items at level 2 (displayed in the right panel of *Figure 2*), the amount of correct answers ranged from 47 % in the ALPHA-French group to 55 % at the national level. These results indicate that most students rely on solid basic mathematics skills at the beginning of formal schooling, and this irrespective of students' language of literacy acquisition as indicated by non-significant group differences remaining below 10 %.

[2] Due to the small overall sample size of the Alpha cohort, the data could not be scaled using advanced Item Response Theory (IRT) models; therefore, the results are reported as raw percentages. For more details, see chapter 2.3.2 "*Reporting of the ÉpStan Achievement Results by Difficulty Level*" in Colling et al. (2024).

• • •

Figure 2 – Academic Achievement in Mathematics by Theoretical Level of Difficulty



Note. LUX = Luxembourgish. 20 items assessed level 1 and 18 items assessed level 2.

2.4 ACADEMIC ACHIEVEMENT IN LUXEMBOURGISH LISTENING COMPREHENSION

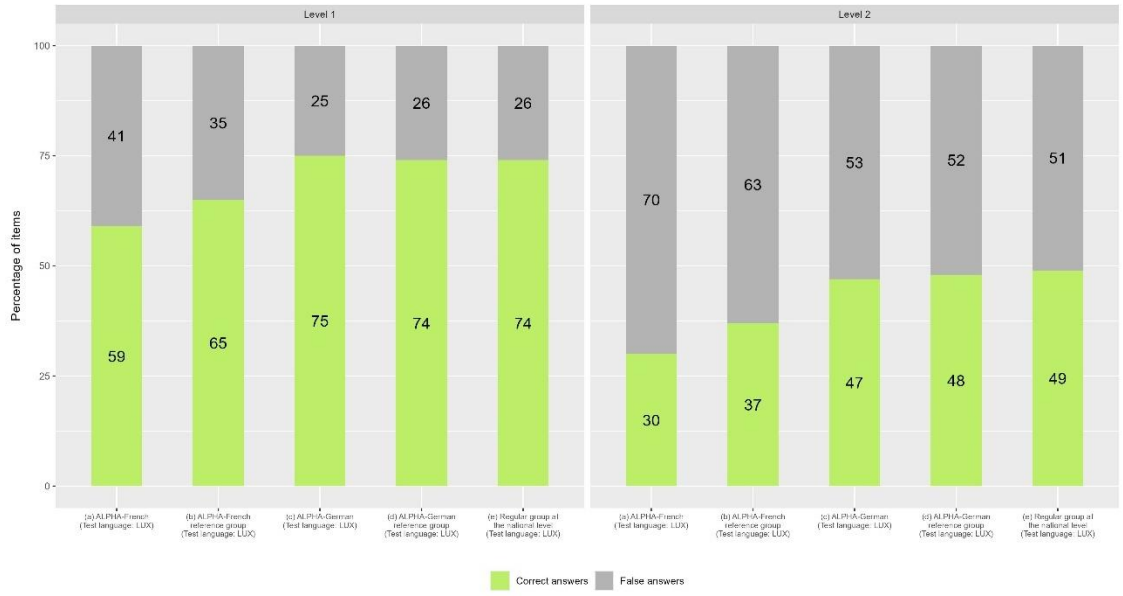
Considering that Luxembourgish is the main language of instruction in *Cycle 1*, the academic achievement test in Luxembourgish listening comprehension has been administered to the C2.1 students of all five groups.

Figure 3 illustrates the academic achievement results in Luxembourgish listening comprehension split by the two theoretical levels of difficulty with level 1 referring to the *Niveau Socle* of *Cycle 1* and level 2 referring to the *Niveau Avancé*. As indicated by the green bars, students of the ALPHA-French group answered 59 % of level 1 items correctly compared to 65 % in the ALPHA-French reference group. In the three other groups, students answered approximately 75 % of level 1 items correctly.

Looking at level 2, a similar pattern arises. With a share of 30 % of correct answers in the ALPHA-French group and of 37 % in the ALPHA-French reference group, both groups are performing lower in Luxembourgish listening comprehension than their peers from the ALPHA-German, the ALPHA-German reference group and at the national level (approximately 48 %). Overall, students from the ALPHA-French and its reference group perfrorm significantly lower than the three other groups with group differences going beyond 10 %.

• • •

Figure 3 - Academic Achievement in Luxembourgish Listening Comprehension by Theoretical Level of Difficulty



Note. LUX = Luxembourgish. 15 items assessed level 1 and 14 items assessed level 2.

2.5 ACADEMIC ACHIEVEMENT IN THE LANGUAGE(S) OF LITERACY ACQUISITION

As described in more detail in Colling et al. (2024), students start with the literacy acquisition pilot project "*zesumme wuessen*" in the second year of *Cycle 1* (C1.2). Students who will begin their literacy acquisition in French in Cycle 2 engage in two to three weekly activities aimed at developing early oral and literacy skills in French (SCRIPT & MENJE, 2023). Similarly, those starting literacy acquisition in German participate in equivalent activities in German.

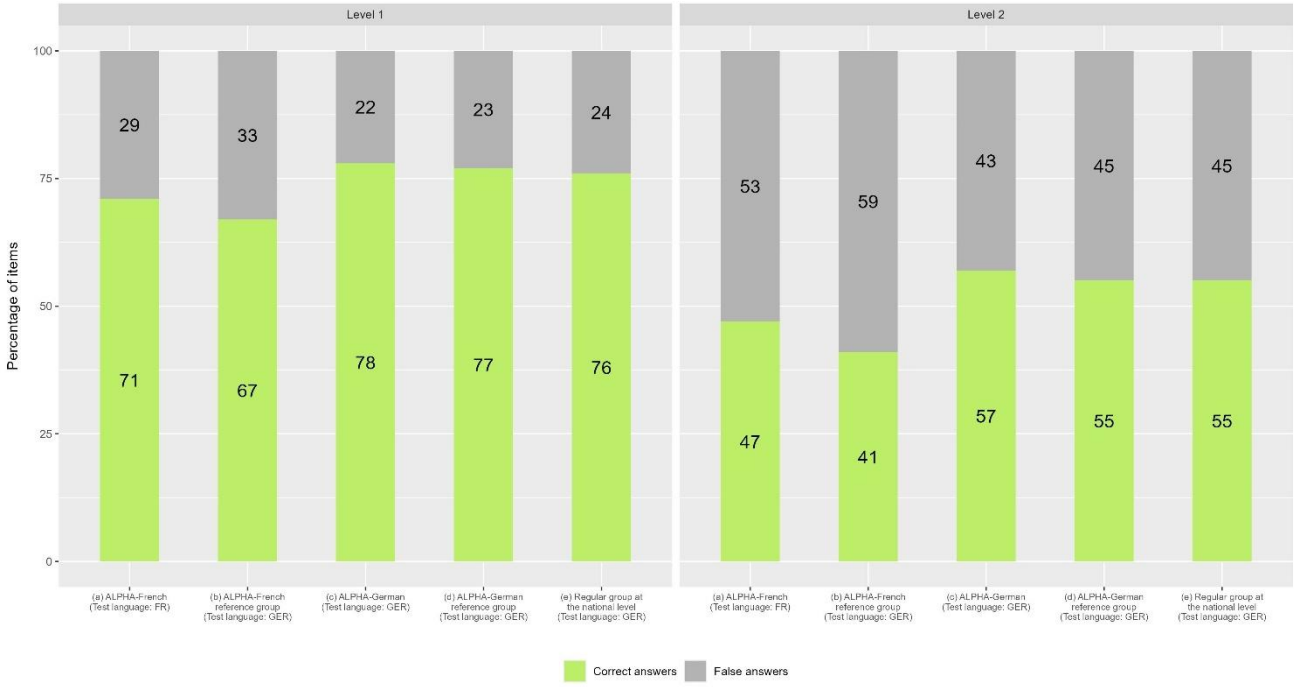
To monitor the academic achievement in the students' language(s) of literacy acquisition, the ÉpStan consist of two achievement tests: listening comprehension and early literacy precursors. Considering that the ÉpStan measure the learning goals from the previous learning cycle, the ALPHA-French students, who were introduced to t French in *Cycle 1*, completed the two specific language tests in French (i.e., ***French listening comprehension*** and ***Premiers Pas vers l'Écrit***), whereas the students from the ALPHA-German group completed the tests in German for listening comprehension (***German listening comprehension***) and in Luxembourgish for early literacy precursors (***Éischt Schrëtt zur Schréftsprooch***). In future years, the early literacy test is planned to be administered in German to the ALPHA-German group to facilitate a fairer comparison among groups. The ALPHA-French group was the only group completing the two language tests in French, whereas all other groups completed the tests in German and Luxembourgish. Although all ÉpStan language tests were developed respecting the same procedures (e.g., in teams with interdisciplinary experts) and by relying on the same reference documents *(i.e., Plan d'Études*; MENFP, 2011) and test content, thereby guaranteeing a **conceptual equating**, comparisons of groups have to be interpreted with caution. In contrast to the ÉpStan measures administered in 2023 to the first cohort (see Colling et al., 2024), the listening

comprehension tests in French and German now include identical text units and corresponding items, enhancing the conceptual comparability between the two test versions.

In the following, the results for listening comprehension in the students' respective language of literacy acquisition are being presented. As indicated in *Figure 4*, the ALPHA-French group correctly completed 71 % of level 1 items and 47 % of level 2 items in **French listening comprehension**. The ALPHA-French reference group, to which the **German listening comprehension** test was administered, completed 67 % of level 1 items and 41 % of level 2 items correctly.

At level 2, students in the ALPHA-French reference group performed significantly lower in **German listening comprehension** compared to the three other groups that completed the same test (ALPHA-German, ALPHA-German reference group, students at national level).

Figure 4 - Academic Achievement in French or German Listening Comprehension by Theoretical Level of Difficulty

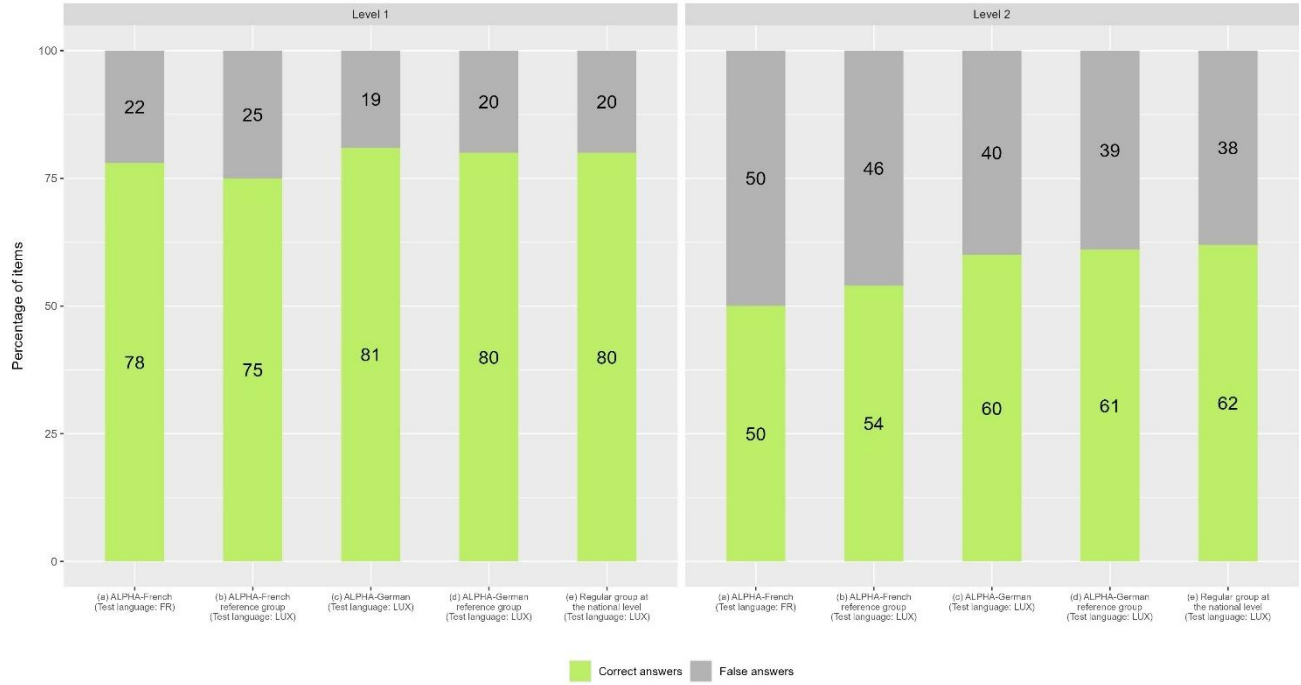


Note. FR = French. GER = German. 18 items assessed level 1 and 13 items assessed level 2.

Figure 5 shows the results for the C2.1 students' early literacy skills. As indicated by the green bars, the students of all five groups answered more than 75 % of level 1 items correctly, ranging from 75 % in the ALPHA-French reference group to 81 % in the ALPHA-German group. Looking at the more difficult items at level 2, a more differentiated picture arises. The ALPHA-French group correctly answered 50 % of the level 2 items of the **French** early literacy test (***Premiers Pas Vers l'Écrit***) and thereby performed significantly lower than students from the ALPHA-German group, the ALPHA-German reference group and students at national level, which completed the **Luxembourgish** early literacy test (***Éischt Schrëtt zur Schrëftsprooch***). However, no significant group difference arises between the ALPHA-French and its reference group.

• • •

Figure 5 - Academic Achievement in Early Literacy by Theoretical Level of Difficulty



Note. FR = French. LUX = Luxembourgish. 26 items assessed level 1 and 19 items assessed level 2.

2.6 ACADEMIC MOTIVATION AND WELLBEING

As described in Colling et al. (2024), the ÉpStan student questionnaire is assessing motivational aspects (i.e., academic self-concept, academic interest, and academic anxiety) both at the general (i.e., across school subjects) and at the domain-specific level (i.e., mathematics, language of literacy acquisition). Students are thereby invited to express their level of (dis-)agreement on a two-point Likert scale using age-appropriate shaking heads as symbols for either agreement (*yes*) or disagreement (*no*) with various statements (e.g., "*I am interested in most school subjects*"). The student questionnaire is presented to the students in their respective language of literacy acquisition, and teachers refer to standardised translations of all statements in Luxembourgish to support the students during the completion of the questionnaire.

Figure 6 shows the results for the C2.1 students' **general academic motivation** with the first two statements assessing general academic self-concept, statement 3 assessing general academic interest and statement 4 assessing general academic anxiety.

As expressed by the green bars, the vast majority of C2.1 students have a high general academic self-concept ranging from 85 % (ALPHA-French reference group) to 91 % (ALPHA-French group) for statement 1 ("*I am good at most school subjects*"). For statement 2 assessing general academic self-concept ("*I learn quickly in most school subjects*"), the agreement of students is slightly lower (ranging from 69 % in the ALPHA-French reference group to 85 % in the ALPHA-French group) but indicates nevertheless that the vast majority of C2.1 students have a positive general academic self-concept.

Regarding statement 3 ("*I enjoy most school subjects*"), results furthermore indicate that C2.1 students have a high general academic interest (ranging from 78 % in the ALPHA-German group to 98 % in the ALPHA-French group). As indicated by the grey bars for statement 4 ("*I am afraid of most school subjects*"), the vast majority of C2.1 students indicates that they do not perceive feelings of general academic anxiety with the share of students perceiving anxiety being the lowest in the APHA-French group (14 %). General academic motivation is thus very high across all statements; an observation that can be made for all student groups.

Figure 6 – General Academic Motivation Expressed in Percentages

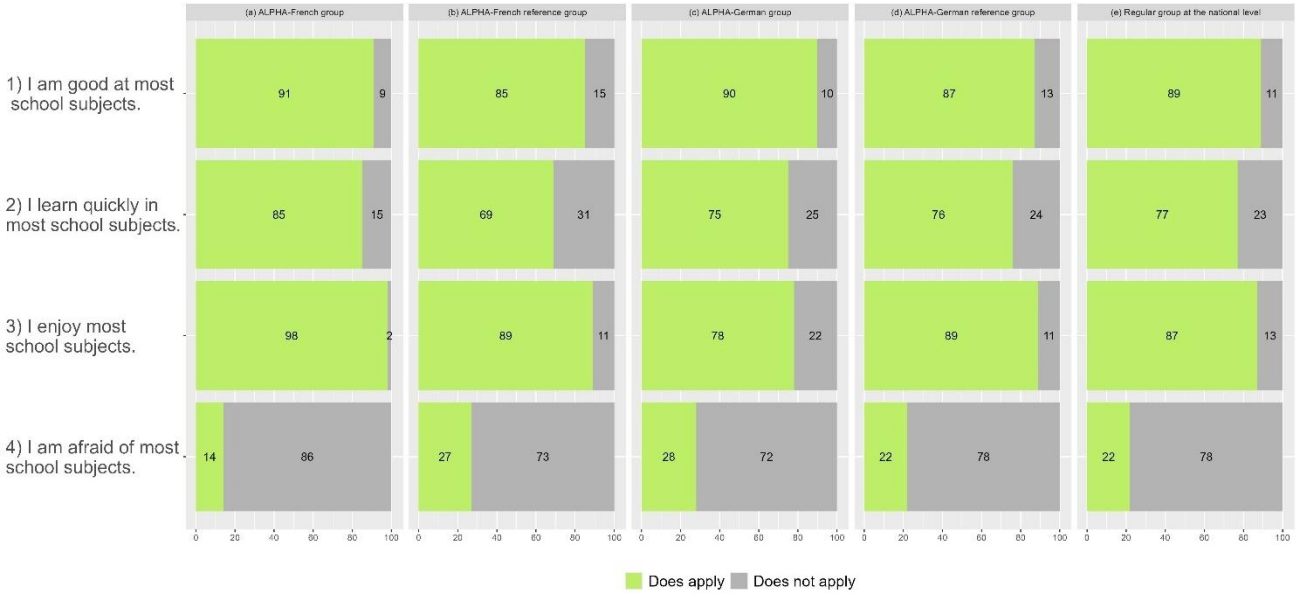
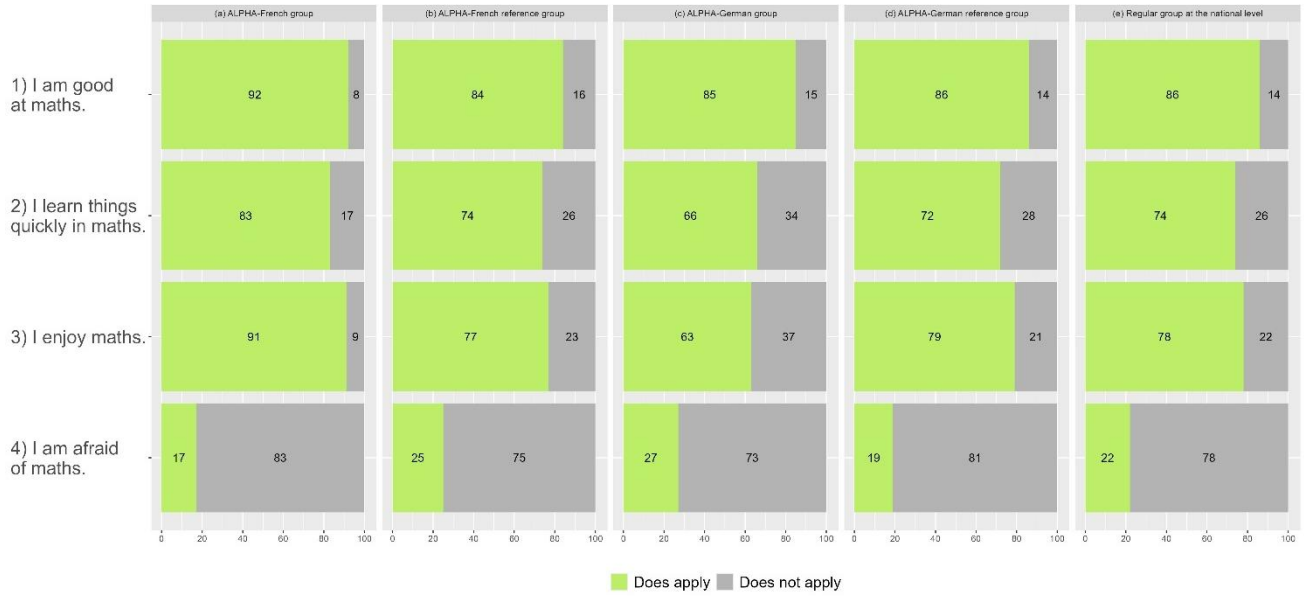


Figure 7 illustrates the results for C2.1 students' domain-specific academic motivation in **mathematics** with the first two statements assessing mathematics self-concept, statement 3 assessing mathematics interest and statement 4 assessing mathematics anxiety. As expressed by the green bars, the vast majority of C2.1 students have a high academic self-concept in mathematics ranging from 84 % in the ALPHA-French reference group to 92 % in the ALPHA-French group for statement 1 ("*I am good at maths*"). For statement 2 ("*I learn things quickly in maths*"), students of all five groups show a slightly lower level of agreement (ranging from 72 % in the ALPHA-German reference group to 83 % in the ALPHA-French group). Regarding domain-specific mathematics interest, the results of statement 3 indicate that most C2.1 students enjoy mathematics (with agreement rates ranging from 63 % in the ALPHA-German group to 91 % in the ALPHA-French group). As indicated by the grey bars for statement 4 ("*I am afraid of maths*"), the strong majority of C2.1 students indicates that they do not perceive feelings of mathematics anxiety (ranging from 73 % in the ALPHA-German group to 83 % in the ALPHA-French group). Domain-specific academic motivation in mathematics is generally perceived as high in C2.1 across all groups.

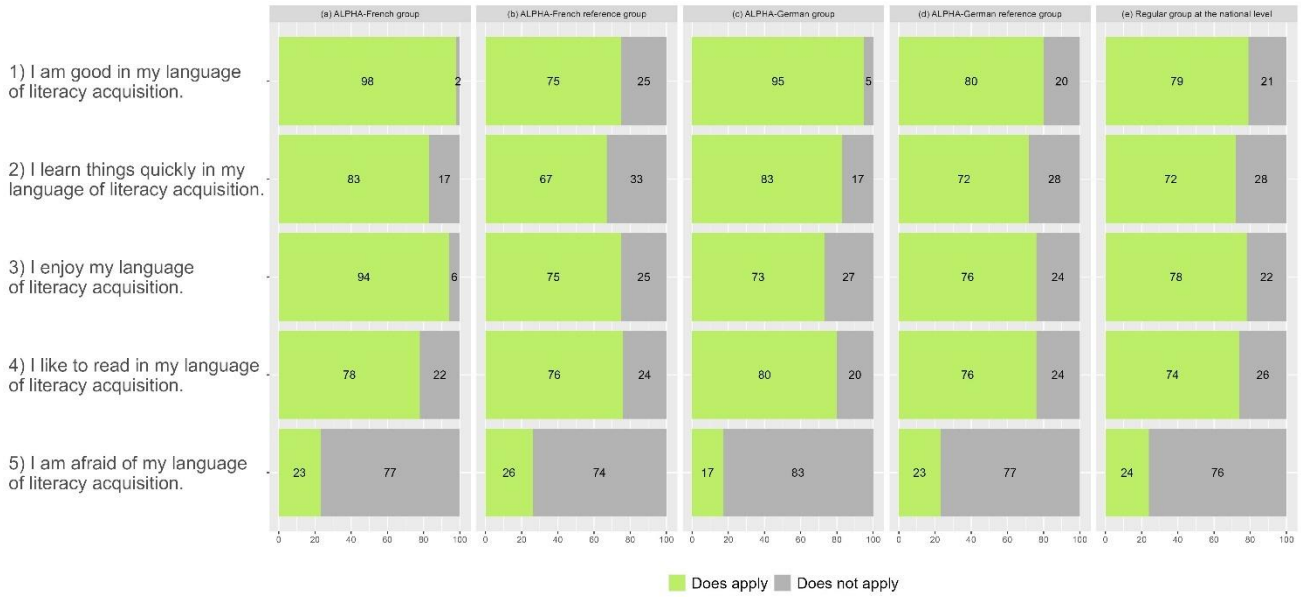
Figure 7 – Domain-specific Academic Motivation in Mathematics Expressed in Percentages



Regarding domain-specific academic motivation in the students' **language of literacy acquisition**, the statements were presented to the students in the ALPHA-French group referring to French (e.g., "*I am good in French*"), whereas all the other groups responded to the statements referring to German (e.g., "*I am good in German*"). *Figure 8* shows the results for domain-specific academic motivation in the language of literacy acquisition with the first two statements assessing academic self-concept, statements 3 and 4 assessing academic interest and statement 5 assessing academic anxiety. Across all five statements, students in the ALPHA-French group are showing slightly higher percentages of agreement than the students from the ALPHA-French reference group. Looking, for example, at the statments "*I am good in my language of literacy acquisition*" and at the statement "*I enjoy my language of literacy acquisition*", the ALPHA-French students indicated 98 % and 94 % of agreement respectively, presented with the French-specific statements, whereas this only applied to 75 % of the students in the ALPHA-French reference group for both, presented with the German-specific statements. Looking at the ALPHA-German group, 95 % of the students perceived themselves to be good in their language of literacy acquisition (i.e., German, item 1) compared to 80 % in their reference group. As for mathematics, domain-specific academic motivation in the students' language of literacy acquisition is generally perceived as high by all students in C2.1.

• • •

Figure 8 - Domain-specific Academic Motivation in the Language of Literacy Acquisition Expressed in Percentages

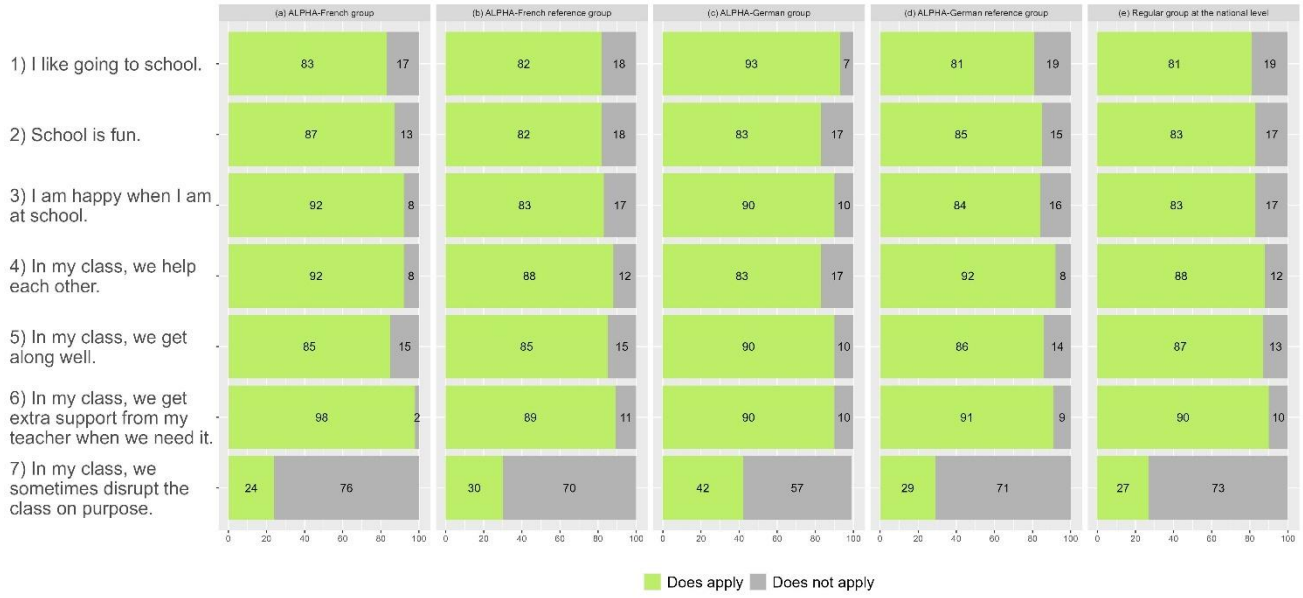


Note. For visualisation purposes, the questionnaire statements were rephrased for the present figure in such a way that all the statements apply to the five student groups, whereas the phrasing in the original questionnaire presented to the students was in line with their respective language of literacy acquisition (i.e., "*I am good in French*" for the ALPHA-French group versus "*I am good in German*" for the other four groups).

Figure 9 illustrates the results for C2.1 students' **academic wellbeing** with the first three statements assessing general school satisfaction, statements 4 and 5 assessing class climate, statements 6 assessing the teacher-student relationship and statments 7 assessing the students' tendency for disruptions. As indicated by the green bars, there are no substantial differences between groups. The vast majority of C2.1 students perceive a high school satisfaction ranging from 81 % (students at national level) to 93 % (ALPHA-German group for the item "*I like going to school*"). With high agreement rates ranging from 83 % (ALPHA-German group) to 92 % (ALPHA-French group and ALPHA-German reference group) for the statement 4 ("*In my class, we help each other*") and from 85 % (ALPHA-French and its reference group) to 90 % (ALPHA-German group for the statement 5 ("*In my class, we get along well*), the results furthermore indicated that students perceive their class climate to be very positive, as they experience a feeling of cohesion and support from their peers. The high percentage of agreement expressed for the two statements assessing class climate is thereby particularly noteworthy for the ALPHA-French and the ALPHA-German group, as they perceive themselves as a cohesive class, despite the fact that they are taught in mixed settings (i.e., consisting of students from the ALPHA-French and the ALPHA-German group), in which different student constellations are coming together for different subjects. Looking at statement 6 ("*In my class, we get extra support from my teacher when we need it*"), the very high agreement rates ranging from 89 % (ALPHA-French reference group) to 98 % (ALPHA-French group) underlines that the vast majority of C2.1 students experience a highly positive teacher-student relationship. As indicated by the grey bars,

statement 7 ("*In my class, we sometimes disrupt the class on purpose*"), the majority of C2.1 students indicate a rather low tendency for class disruption (ranging from 24 % in the ALPHA-French group to 30 % in the ALPHA-French reference group) with the exception of the ALPHA-German group with 42 % of students indicating to sometimes disrupt the class on purpose. The results displayed in *Figure 9* indicate that academic wellbeing is generally very high; an observation that can be made across all five student groups.

Figure 9 - Academic Wellbeing Expressed in Percentages



2.7 PARENTAL PERCEPTIONS ON MULTILINGUALISM AND ACADEMIC SUPPORT

As described in more detail in Colling et al. (2024), the ÉpStan parent questionnaire extension focusing on parental support invites parents to express their level of (dis-)agreement to statements presented on a four-point Likert scale ranging from "*does not apply*" to "*does apply*". The parent questionnaire is made available in four different languages (i.e., German, French, English and Portuguese). *Figure 10* illustrates the perceptions of C2.1 parents on multilingualism in Luxembourg's education system (statements 1 and 2), on their own and the teachers' role to support their child in learning (statements 3 and 4), on their possibilities to exchange with their child's teacher (statements 5 and 6), as well as on their perceived ability to support their child academically when considering their own language skills (statements 7 to 9).

As indicated by the dark and light green bars, the vast majority of parents from all five groups (rather) agree that the multilingualism of the schools in Luxembourg offers their child good future opportunities, with an agreement rate of more than 94 % (see statement 1). Despite this positive perception of multilingualism as such, approximately 30 % of all the parents did (rather) agree that the multilingualism

in Luxembourg's schools poses a difficulty to their child with this perception being least pronounced in the ALPHA-French group (14 %, see statement 2).

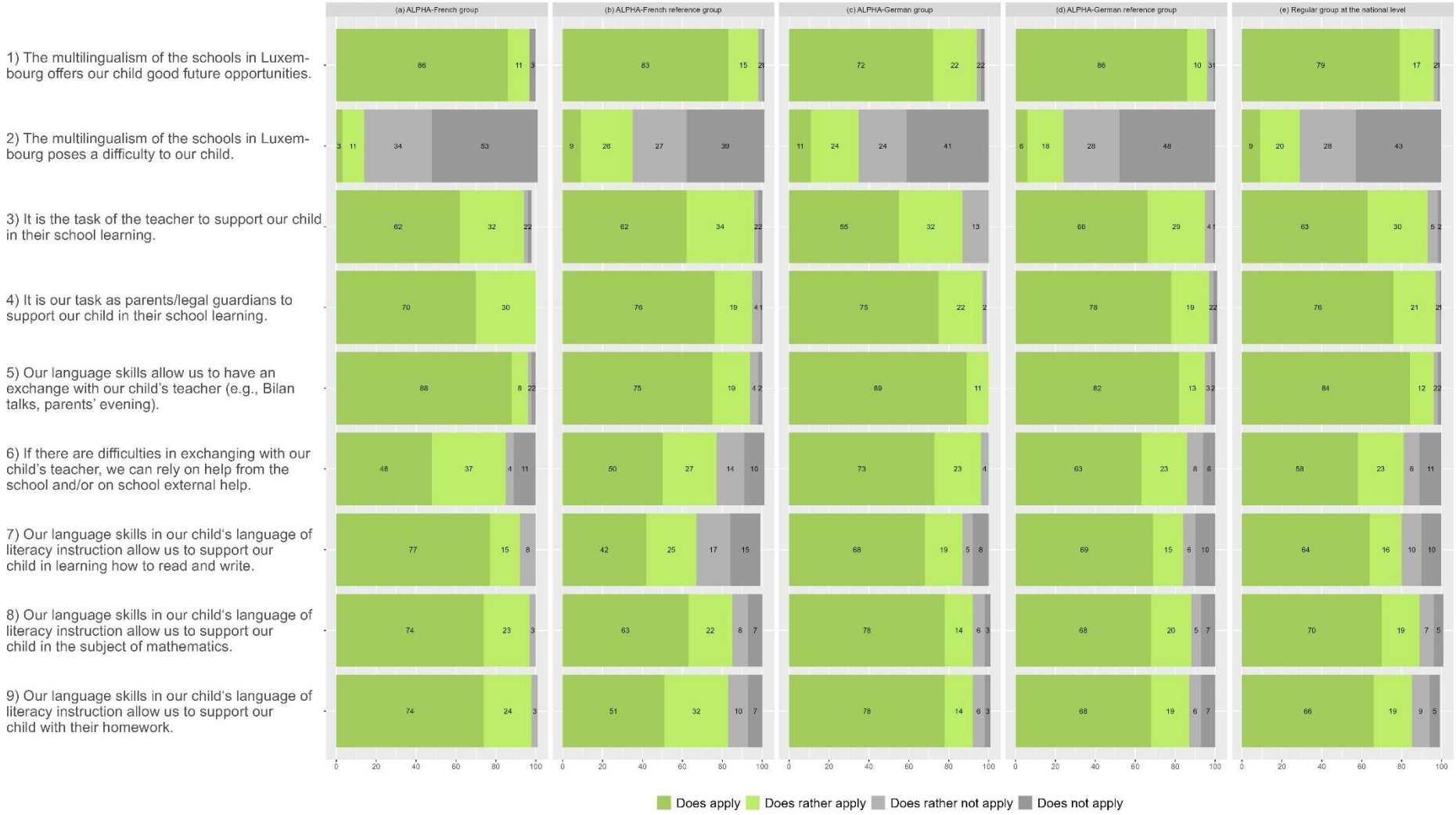
When it comes to supporting their child in school learning, parents of all five groups strongly agree that both teachers (ranging from 87 % in the ALPHA-German group to 96 % in the ALPHA-French reference group, see statement 3) and themselves as parents or legal guardians (ranging from 95 % in the ALPHA-French reference group to 100 % in the ALPHA-French group, see statement 4) are responsible to support the children in their school learning.

Considering the exchange with their child's teacher (e.g., during the *Bilan* talks or at parents' evenings), the vast majority of parents across all groups (ranging from 94 % in the ALPHA-French reference group to 100 % in the ALPHA-German group) perceive that their own language skills allow them to communicate well with their child's teacher (see statement 5). In addition, most parents can rely on help from the school and/or school external help when having difficulties in exchanging with their child's teacher (ranging from 77 % in the ALPHA-French reference group to 96 % in the ALPHA-German group, see statement 6).

The last three statements are specifically interesting to understand how the parents' own language skills in their child's language of literacy acquisition allow them to support their child academically (e.g., in learning how to read and write, in the subject of mathematics and during their homework). In contrast to the other statements, considerable group differences can be identified for these statements especially when looking at the ALPHA-French group and its direct reference group. Whereas 32 % of the parents of the ALPHA-French reference group have the perception that they are (rather) not able to support their child when learning to read and write due to their own skills in their child's language of literacy acquisition, this only applies to 8 % of parents in the ALPHA-French group (see item 7). When it comes to support in the subject of mathematics (see item 8), the difference between the ALPHA-French group (3 %) and its reference group (15 %) is slightly less pronounced. A similar pattern emerges regarding support during homework (see statement 9) with 17 % of the parents of the ALPHA-French reference group stating that they feel (rather) not able to support their child during homework compared to 3 % of parents in the ALPHA-French group. For all three parental support statements, the differences between the three other groups are slightly smaller.

• • •

Figure 10 – Parental Perceptions on Multilingualism and Academic Support Expressed in Percentages



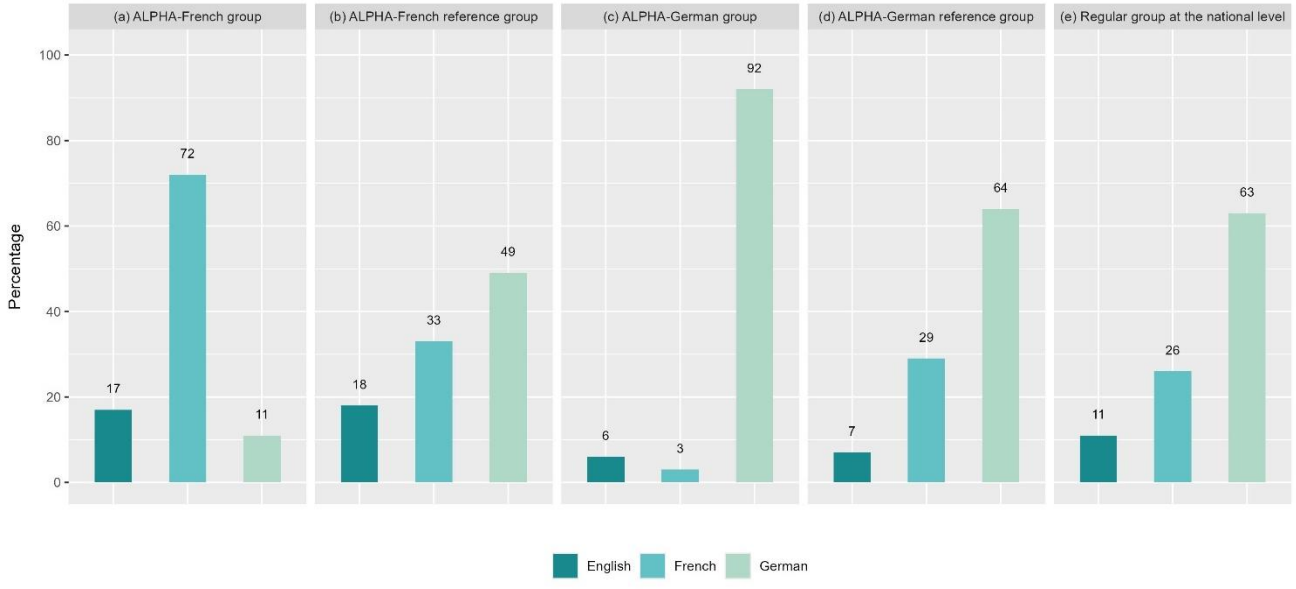
Note. If the sum of a group's percentages for an item does not add up to 100 %, this is due to rounding up or down.

2.8 PREFERRED LANGUAGE OF LITERACY ACQUISITION

In the parent questionnaire, parents were furthermore asked which language of literacy acquisition they would prefer for their child. German, French and English were thereby given as possible answer options, considering that those are the three languages in which literacy acquisition is currently possible in the school system (i.e., for a small number of students in the scope of the pilot project and for the general population in the six International Publc Schools of the country).

Figure 11 depicts the findings for the C2.1 parents' preferred language of literacy acquisition for their child. The strongest overlap between the child's actual language of literacy acquisition and the parents' preferred language of literacy acquisition can be observed in both the ALPHA-French (72 %) and the ALPHA-German group (92 %). In the other three groups, the majority of parents indicated German to be their preferred language of literacy acquisition (ranging from 49 % in the ALPHA-French reference group to 64 % in the ALPHA-German reference group). It is however noteworthy that approximately one third of the parents from the ALPHA-French reference group would have preferred French (33 %) as language of literacy acquisition, followed by English (18 %). Although slightly less pronounced, the same pattern can also be observed for the ALPHA-German reference group and at the national level where approximately one third of the parents would have opted for either French or English if given the choice.

Figure 11 – Preferred Language of Literacy Acquisition Expressed in Percentages



3. DISCUSSION AND OUTLOOK

3.1 SUMMARY AND DISCUSSION OF RESULTS

This intermediary report presents the first findings of the second cohort of the pilot project "*zesumme wuessen*" evaluated in C2.1 in the school year 2024/25. However, they should be interpreted with caution due to a number of **important statistical and methodological limitations.**

Based on questionnaire data collected from both C2.1 students and their parents, the present report has in a first step analysed the **composition of the student population** taking part in the pilot project. Both the ALPHA-French and the ALPHA-German students are characterised by a lower SES than their peers following the regular curriculum at the national level. Regarding language background, students in the ALPHA-French group predominantly have a French and/or Portuguese language background, whereas students in the ALPHA-German group predominantly speak Luxembourgish and/or German at home (see *Table 1* and *Figure 1*).

Results of the ÉpStan achievement test in **mathematics** (administered in Luxembourgish to all groups and thus directly comparable) show that a vast majority of students have achieved the *Niveau Socle* of Cycle 1 and are furthermore able to solve a considerable amount of the more difficult items at the *Niveau Avancé*. With group differences that do not go beyond 8 percentage points at level 2 in mathematics, it can be concluded that the majority of students start primary education (C2.1) with solid basic skills in mathematics; a finding that can be observed irrespective of the students' language of literacy acquisition.

Results of the ÉpStan achievement test in **Luxembourgish listening comprehension** (administered in Luxembourgish to all groups and thus directly comparable) show that students from the ALPHA-German group, its reference group and students at the national level have slightly more advanced skills at both level 1 and level 2 compared to the ALPHA-French and its reference group. The fact that students from the ALPHA-French and the ALPHA-French reference group perform lower in Luxembourgish listening comprehension aligns with the finding that they are less exposed to Luxembourgish within the family (see *Figure 1*) and in home activities (see section 2.2 for details). Although students of the ALPHA-French group performed lower in Luxembourgish listening comprehension than the other groups (see *Figure 4*), their individual student feedbacks revealed that 75 % of the students in the ALPHA-French group are above the defined minimum educational standard (i.e., *Niveau Scole*) thus indicating good basic skills in Luxembourgish listening comprehension. Taken together with the finding that Luxembourgish is the language students are the most frequently using when in contact with their friends, Luxembourgish remains the main language of communication across students from all five groups at the beginning of literacy acquisiton.

• • •

Regarding academic achievement in the language of literacy acquisition, the ALPHA-French group was the only group to which the tests were administered in French, whereas the test language in all the other groups was German (for the listening comprehension test) and Luxembourgish (for the early literacy test).

From the 4 groups that completed the **German listening comprehension,** the performance of students from the ALPHA-French reference group is significantly lower than the performance of the ALPHA-German, the ALPHA-German reference group and students at national level (>10 % at level 2). This finding indicates that students from the ALPHA-French reference group struggle slightly more with listening comprehension in German, a language linguistically further away from most of the students' home language in this group (see *Table 1*). In comparison, the students from the ALPHA-French group completed the **French listening comprehension test**. When looking at the results from the ALPHA-French group it becomes apparent that they do not perform significantly lower in listening comprehension than the ALPHA-German, the ALPHA-German reference group and the students at national level (differences not going beyond 10 %). This observation for the ALPHA-French group could potentially be explained by the fact that these students completed the test in French, a language linguistically closer to their home language background (i.e., French or Portuguese), whereas students from the ALPHA-French reference group completed the test in German (i.e., listening comprehension), a language linguistically furher away from their home language background.

In **early literacy,** test results at level 1 indicate good basic skills with no significant differences between the five student groups. At level 2, there is no significant group difference between the ALPHA-French and its reference group, however, it becomes apparent that the ALPHA-French group shows slightly lower results than the ALPHA-German, the ALPHA-German reference group and students at national level (differences of approximately 10 %).

When it comes to **domain-general academic motivation** (see *Figure 6*), students in the ALPHA-French group showed higher academic self-concept and interest in their school subjects and lower school anxiety compared to the students from the other four groups with the differences being most pronounced when looking at its direct reference group (exceeding 10 % of agreement).

Regarding **domain-specific academic motivation** in their language of literacy acquisition (see *Figure 8*), it appears that students in the ALPHA- French group have a considerably higher academic self-concept and interest to learn in French, a language linguistically closer to their home language background, compared to students learning to read and write in a language (i.e., German), which is further away from their own language background. When it comes to domain-specific academic motivation in mathematics, a similar but less pronounced pattern emerges in favour of the ALPHA-French students.

• • •

Regarding **wellbeing**, most students from all five groups expressed a high academic wellbeing (see *Figure* 9) at the beginning of primary education. Although students from the ALPHA-French and the ALPHA-German groups are taught in mixed settings (i.e., consisting of students from both groups), in which different student constellations are coming together for different subjects, the results on wellbeing indicate that the students nevertheless perceived themselves as a cohesive class, in which they support each other. Results indicate furthermore that the students from the ALPHA-French group feel particularly well supported by their teachers when needed.

Regarding **parental support**, parents from the ALPHA-French group indicated more often to perceive themselves as being able to support their child academically (e.g., in literacy acquisition, mathematics and when doing homework) due to their own language skills in French. This observation seems particularly noteworthy when compared to parents of students having comparable individual background characteristics (i.e., ALPHA-French reference group) that perceived themselves less often able to support their child academically due to their own language skills in German (see *Figure 10*).

Data from the parent questionnaire indicates that most parents of the ALPHA-French group and the ALPHA-German group are satisfied with the choice of their child's language of literacy acquisition (see *Figure 11*).

3.2 STATISTICAL AND METHODOLOGICAL LIMITATIONS

Although the findings of this intermediary report allow a further evaluation of the pilot project "*zesumme wuessen*", they should be interpreted with caution due **statistical and methodological limitations**, that are described in more detail in the following.

Limited comparability of results between the ALPHA-French and the other four groups: As it can be seen in *Table 1*, the ALPHA-French group consisted of *N* = 48 and the ALPHA-German group of *N* = 42 students. Considering that a certain sample size is required in order to scale the results of an academic achievement test using advanced Item Response Theory (IRT) models and that only students from the ALPHA-French group completed the two French achievement tests (i.e., French listening comprehension as well as *Premiers Pas vers l'Écrit*), it was not possible to scale these tests in the same way as the other ÉpStan achievement tests (i.e., Luxembourgish listening comprehension and mathematics), which were taken by the full cohort of students attending C2.1. The small sample size for the French tests implies that comparisons of French listening comprehension and *Premiers Pas vers l'Écrit* results of the ALPHA-French group with other groups have to be interpreted with caution.

In contrast to the previous data collection (see Colling et al., 2024), a **stronger alignment** between the different ÉpStan achievement tests (i.e., same test content and theoretical difficulties), as well as between the two different language versions of the student questionnaire, has been implemented assessing the students' listening comprehension in their language of literacy acquisition (German and

French listening comprehension tests). However, such a stronger alignment could not yet be achieved in early literacy assessment considering that the students in the ALPHA-French group took the test in French (***Premiers Pas vers l'Écrit***), whereas all other groups completed the test in Luxembourgish (***Éischt Schrëtt zur Schrëftsprooch***) instead of their language of literacy acquisition (i.e., German). Considering that Luxembourgish is the main instruction language in *Cycle 1*, this might lead to the test being easier for these four groups as they completed it in a language they formally learned for two to three years (*Enseignement précoce* and/or *Enseignement préscolaire*). Future assessments should thus aim at aligning the early literacy test language to allow a more sound statistical comparison between groups.

3.3 OUTLOOK AND FUTURE RESEARCH

Despite the described statistical and methodological limitations (e.g., small sample sizes of the ALPHA-French and ALPHA-German group), the findings described in the present report offer an important indication that the literacy pilot project "*zesumme wuessen*" could potentially contribute to encounter the existing educational inequalities in Luxembourg, which are assumed to result (at least partially) out of the high language expectations of the regular curriculum. In this context, the following **main findings** can be highlighted:

(a) Regarding **listening comprehension in the language of literacy acquisition**, the ALPHA-French reference group performed below the ALPHA-German, the ALPHA-German reference group and students at national level. This might be explained by the fact that all these groups took the test in **German,** a language linguistically further away from the language spoken at home for the students of the ALPHA-French reference group. In contrast, students from the ALPHA-French group showed no significant differences to these three groups in **listening comprehension in the language of literacy acquisition**. This could potentially be explained by the fact that they completed the test in **French**, a language linguistically closer to their home language background (i.e., French or Portuguese).

(b) The students from the ALPHA-French group reported to have a **higher domain-general and domain-specific academic self-concept and interest in their language of literacy acquisition** compared to all other groups. This finding is particularly relevant in light of a strong consensus in research stating that academic motivation and academic achievement are positively related to each other (Schiefele et al., 2016; Wolff et al., 2021).

(c) The parents of students from the ALPHA-French group **perceived themselves more often able to support their child academically** due to their own language skills in French, when compared to parents of students from the ALPHA-French reference group, who indicated to perceive themselves as less able to support their child academically due to their own language skills in German. In light of research results showing that the parents' possibilities to support their child

• • •

when it comes to school learning positively relates to academic achievement (Bakker et al., 2007; Boonk et al., 2018), it can potentially be expected that students from the ALPHA-French group will specifically benefit from their parents' perceived ability to support them academically during their educational career (e.g., higher achievement scores, lower grade repetition rates).

By continuously integrating the classes participating in the literacy pilot project into the well-established school monitoring programme, the ÉpStan will allow a more in-depth analysis of potential educational outcome differences between students pursuing their literacy acquisition in French compared to the students pursuing their literacy acquisition in German in the near future. In this context, the ÉpStan 2025/26 will furthermore allow to follow the C2.1 students, whose results from the ÉpStan 2023/24 were presented in the previous report (Colling et al., 2024), longitudinally to the beginning of the next learning cycle (C3.1). More specifically, the longitudinal data analyses, which are foreseen to be published in the ALPHA Report 2026, will provide comprehensive insights into the developmental trajectories of the students participating in the pilot project in educational key domains (e.g., listening and reading comprehension in their language of literacy acquisition as well as mathematics) between C2.1 and C3.1; a time period which can be considered crucial for the subsequent academic careers of students (Hornung et al., 2021).

• • •

REFERENCES

Bakker, J., Denessen, E., & Brus-Laeven, M. (2007). Socio-economic background, parental involvement and teacher perceptions of these in relation to pupil achievement. *Educational Studies*, *33*(2), 177-192. https://doi.org/10.1080/03055690601068345

Boehm, B., Ugen, S., Fischbach, A., Keller, U., & Lorphelin, D. (2016). Zusammenfassung der Ergebnisse in Luxemburg. In Ministry of Education, Children and Youth, SCRIPT & University of Luxembourg, LUCET (Éds.), *PISA 2015 : Nationaler Bericht Luxemburg* (p. 4-12). https://men.public.lu/dam-assets/catalogue-publications/statistiques-etudes/secondaire/pisa-2015-de.pdf

Boonk, L., Gijselaers, H. J. M., Ritzen, H., & Brand-Gruwel, S. (2018). A review of the relationship between parental involvement indicators and academic achievement. *Educational Research Review*, *24*, 10-30. https://doi.org/10.1016/j.edurev.2018.02.001

Colling, J., Hornung, C., Esch, P., Keller, U., Hellwig, A.-L., & Ugen, S. (2024). *Literacy Acquisition in German or French in the Pilot Project "Zesumme wuessen!" – Preliminary ÉpStan Results of Student Characteristics, Achievement, Motivation, and Parental Support* (978-99987-711-1-6). Luxembourg Centre for Educational Testing (LUCET). https://doi.org/10.48746/ALPHA2024

Hadjar, A., Fischbach, A., & Backes, S. (2018). Bildungsungleichheiten im luxemburgischen Sekundarschulsystem aus zeitlicher Perspektive. In University of Luxembourg, LUCET & Ministry of Education, Children and Youth, SCRIPT (Éds.), *Nationaler Bildungsbericht Luxemburg 2018* (p. 58-82).

Hornung, C., Wollschläger, R., Keller, U., Esch, P., Muller, C., & Fischbach, A. (2021). Neue längsschnittliche Befunde aus dem nationalen Bildungsmonitoring ÉpStan in der 1. Und 3. Klasse : Negativer Trend in der Kompetenzentwicklung und kein Erfolg bei Klassenwiederholungen. In University of Luxembourg, LUCET & Ministry of Education, Children and Youth, SCRIPT (Éds.), *Nationaler Bildungsbericht Luxemburg 2021*. (p. 44-55).

MENFP (Éd.). (2011). *Plan d'études. École fondamentale*.

• • •

MENJE. (2022). *Projet pilote d'alphabétisation en français à l'école fondamentale luxembourgeoise*. http://men.public.lu/fr/actualites/communiques-conference-presse/2022/05-2022/projet-pilote-alphabetisation-francais-ef.html

Schiefele, U., Stutz, F., & Schaffner, E. (2016). Longitudinal relations between reading motivation and reading comprehension in the early elementary grades. *Learning and Individual Differences*, *51*, 49-58. https://doi.org/10.1016/j.lindif.2016.08.031

SCRIPT, & MENJE. (2023). *« Zesumme Wuessen! » Alphabetiséierung op Franséisch*. https://alpha.script.lu/sites/default/files/2023-07/description%20du%20projet.pdf

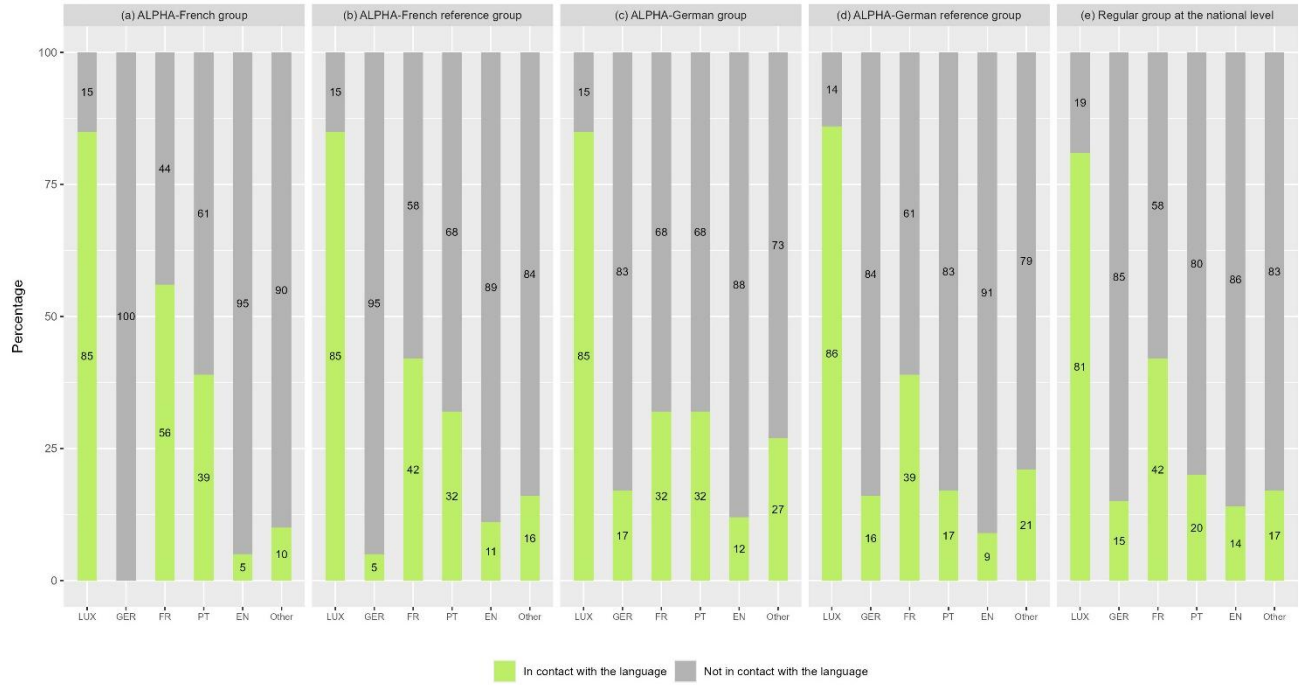
SCRIPT, & MENJE (Éds.). (2024). *Education System in Luxembourg : Key Figures.* https://www.script.lu/sites/default/files/publications/2024-02/2024_SCRIPT_Enseignement_fondamental_Flyer_EN.pdf

Wolff, F., Sticca, F., Niepel, C., Götz, T., Van Damme, J., & Möller, J. (2021). The reciprocal 2I/E model : An investigation of mutual relations between achievement and self-concept levels and changes in the math and verbal domain across three countries. *Journal of Educational Psychology*, *113*(8), 1529-1549. https://doi.org/10.1037/edu0000632

• • •

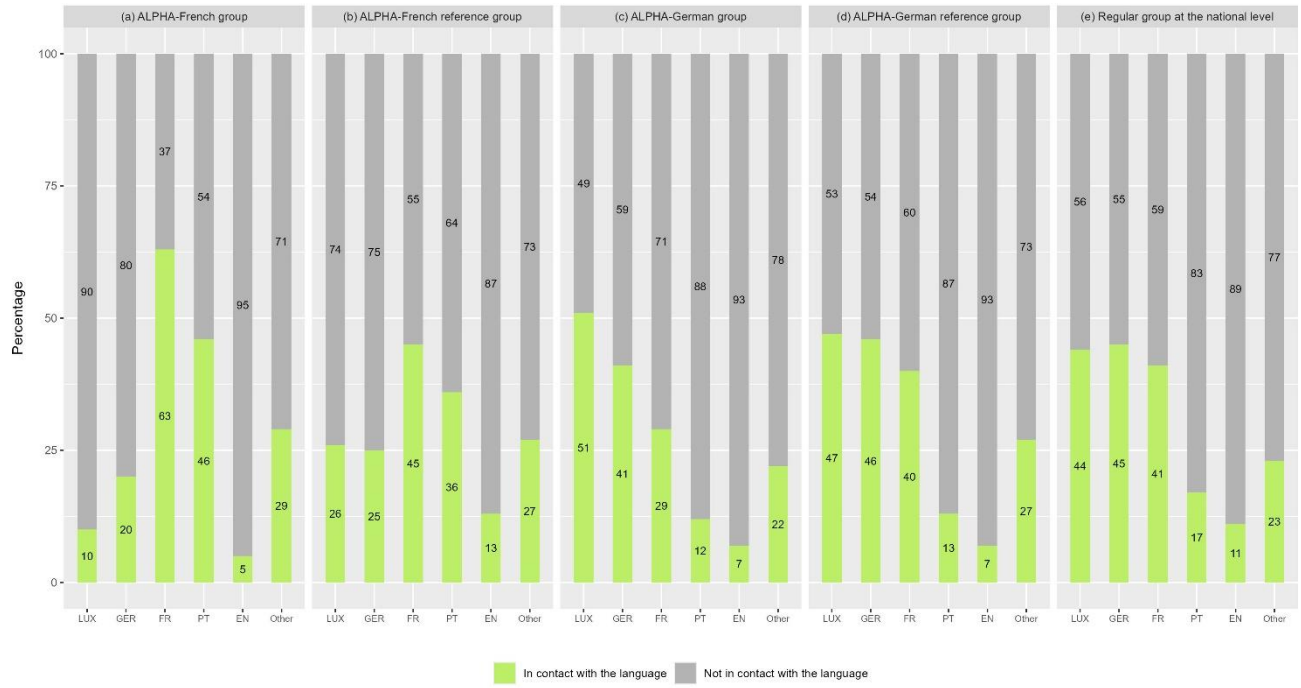
ANNEX

Figure A1 – Language Contact with Friends Expressed in Percentages



Note. LUX = Luxembourgish. GER = German. FR = French. PT = Portuguese. EN = English.

Figure A2 – Language Contact in the Context of Media Use Expressed in Percentages: Storytelling



Note. LUX = Luxembourgish. GER = German. FR = French. PT = Portuguese. EN = English.

• • •