SKBF Staff Paper #26

Monitoring the digitalisation of education from the students' perspective

Supplementary report with results of the four surveys 2020–2024

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Monitoring the digitalisation of education from the students' perspective

Chantal Oggenfuss* & Stefan C. Wolter**

Abstract

The survey on the digitalisation of schools, which has now been conducted for the fourth time among students from compulsory school to upper-secondary level, reveals four main findings. Firstly, the integration of digital tools and devices in schools has reached a ceiling. The differences between French-speaking Switzerland and German-speaking Switzerland have tended to narrow, but the canton of Ticino still has a significantly lower level of digitalisation. Secondly, students consistently report positive aspects of using digital tools much more frequently across all four surveys than negative aspects, such as fatigue. Thirdly, smartphones are very rarely used for school purposes in primary school (3%), but almost 80% of primary school students use a smartphone at home for private use. Fourthly, and for the first time in this survey, we measure the use of artificial intelligence (AI) applications that are used in schools and for school purposes at home. Whether for translations or in the form of generative language models such as ChatGPT, most students at lower-secondary level and above have already used such tools at school and used them at least once a week. At upper-secondary level, the application and use of AI tools in general education both at school and privately at home is also significantly more common than in basic vocational education.

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1. Introduction

In spring 2020, the COVID-19 pandemic and nationwide school closures meant that digital tools such as computers and tablets became key instruments for maintaining school lessons from one day to the next. Up to this point, however, there were no national surveys that systematically recorded the spread of digital tools or their use in schools. In order to close this gap, the Swiss Coordination Centre for Research in Education (SCCRE) and the market and opinion research institute gfs.bern initiated the "Monitoring the digitalisation of education from the students' perspective" in autumn 2020 with the support of the Mercator and Jacobs Foundations[1]. This national monitoring covers compulsory schooling and upper-secondary level and records the availability and use of digital tools from the perspective of students and learners. Based on the results of this first survey, the Confederation and the cantons decided to set up a long-term monitoring system to systematically observe and analyse developments around digitalisation in schools over a longer period. To date, the results of four surveys (2020, 2021, 2022 and 2024) are available, which have been evaluated and described in three SCCRE staff papers. This report now summarizes the results of the fourth survey from spring 2024 and enables a comprehensive comparison across all four survey dates.

2. Sample

For all surveys, an age sample of around 10,000 people was drawn by the Federal Statistical Office, based on households with children and young people aged 8 to 18. The response rate is remarkably high for all four surveys and is between 57% and 65% in each case. A detailed comparison of the analytical samples, i.e. the participants, also shows a high degree of comparability over time. The overall population of students is very well represented in all four surveys in terms of characteristics such as migration background,

1 The "Monitoring the digitalisation of education from the students' perspective" is being conducted by the Swiss Conference of Cantonal Ministers of Education (EDK) and the State Secretariat for Education, Research and Innovation (SERI) as part of the Swiss education monitoring programme. The authors are also grateful for the support of the Federal Statistical Office for the sampling. The survey in 2024 was conducted by YouGov (formerly Link).

parents' education, language regions and educational levels. Thanks to the high response rate a high degree of representativeness of the participants at all educational levels, and at upper-secondary level for all different types of education and for the language regions (with an increased sample size for the canton of Ticino) is ensured. With the sample size available, the margin of error for the entire population is around one percentage point, while it is around three percentage points for differentiated statements on regions or education levels.

For the primary level, children from the age of eight were considered. This means that the statements on the primary level mainly refer to students in the 4th to 8th school year. Children in the first two school years of the first cycle (kindergarten) and the first two years of primary school are therefore excluded, as it can be assumed that digital forms of teaching and learning play a subordinate role in these first four years of their educational career. For children under the age of 14, parents were asked in the invitation letter to support their child in answering the questionnaire. Students attending transitional education or intermediate schooling at the end of compulsory schooling were excluded from the survey, i.e. in the post-compulsory area of upper-secondary level, only young people who were either in basic vocational training, in training at a baccalaureate school or an upper-secondary specialized school were surveyed.

3. Surveys

The first survey took place in fall 2020 and covered the period after the summer vacations. To capture dynamics in connection with the extraordinary situation due to the pandemic, another survey was conducted just six months later in spring 2021. The third survey took place a year later in spring 2022. The results of these three surveys led to the conclusion that a two-year cycle for monitoring is sufficient to continuously observe developments around digitalisation in schools. The fourth survey was again conducted in spring 2024, i.e. exactly two years after the third survey and three years after the first survey. The next survey is planned for spring 2026. To ensure the comparability of the content of the four surveys, identical questionnaires were used across all surveys. Students in compulsory school and upper-secondary level were asked about the availability and use of digital devices and applications. The questions covered both the intensity and

type of use at school and at home. In addition, the availability of the internet at home and at school as well as attitudes towards learning with digital tools were recorded. In the fourth survey, the use of AI-based applications, including ChatGPT, translation tools and image generation programmes, was surveyed for the first time. These played a subordinate role in the first three surveys, as ChatGPT, for example, was only launched after the third survey in 2022. The additional questions on AI-based applications consider current developments in digital tools and provide the first nationwide information on the use of AI-based applications in the school and extracurricular context.

To also cover households with insufficient digital equipment, it proved to be crucial that the survey could be answered both online and in writing (paper-pencil questionnaire). An online-only survey would have increased the risk of under-representation of households with poor digital equipment. The results confirmed that the organisational and financial effort for both survey methods (online and paper&pencil) was necessary to prevent bias in the sample (selection bias). As it turned out, such a bias cannot be compensated for solely by subsequently weighting the responses according to the socio-demographic characteristics of the participants (see SKBF Staff Paper #24).

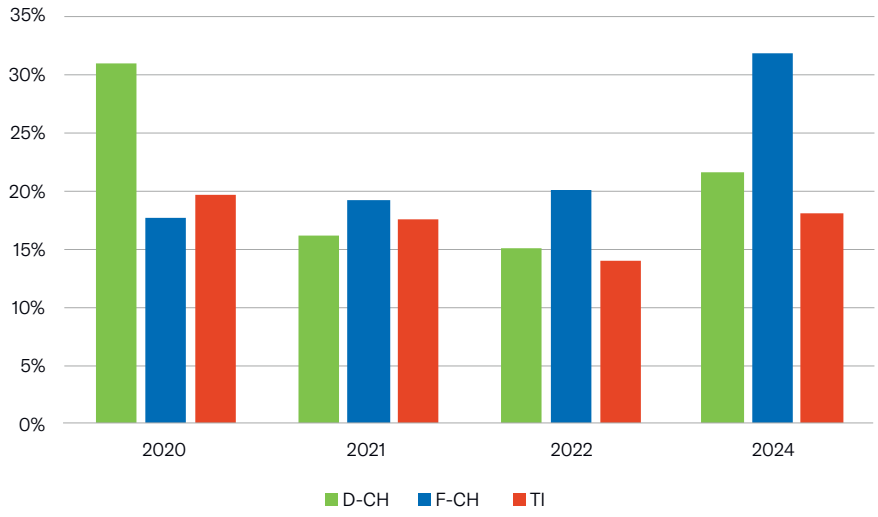
The data collected includes the most important socio-demographic characteristics, which are considered as background and control variables in the multivariate analyses alongside the language region[2] and the level of education. These are gender, the deviation from the average age of the educational level attended, the first language (school language or another language), the migration background and the parents' highest level of education. A further approximation of the parents' economic status is provided by whether the child has a room on her or his own at home. The statistical differences between observation groups shown below are reported taking all these characteristics into account.

2 Berne and Grisons are assigned to German-speaking Switzerland, Fribourg, and Valais to French-speaking Switzerland.

4. Private purchase of computers

The effect that was most clearly linked to the COVID-19 pandemic concerned the frequency of private purchases of computers and other digital devices (desktop, laptop, tablet). In the first survey, 26% of respondents stated that they had purchased a computer in spring 2020 (taking all digital devices into account, the proportion of new purchases was 30%). In the subsequent surveys, this proportion fell continuously: in spring 2021 it was 20%, in spring 2022 it fell again significantly to 15%. In 2024, the purchase rate rose again for the first time, which is mainly due to the increase in French-speaking Switzerland (F-CH). Considering the two-year periods (excluding the 2021 survey), the average purchase rate for desktops, laptops and tablets in Switzerland is around 22%. In the canton of Ticino (TI), this figure is significantly and statistically lower at 16%. The sharp decline between 2020 and 2021 in German-speaking Switzerland (D-CH) also makes it clear that the high value in the first survey must have been a pandemic-related high value. In contrast, the sharp increase in French-speaking Switzerland between 2022 and 2024 is less easy to deduce. However, it may be a catch-up effect, as the use of digital aids in French-speaking Switzerland was still below the intensity of use in German-speaking Switzerland in the first surveys.

Figure 1: Purchase of computers by language region



Note: n_{20} = 5592, n_{21} = 5819, n_{22} = 5375, n_{24} = 5419; considering individual characteristics (gender, educational level, deviation from the average age according to educational level, first language, migration background, parents' education, living situation and survey mode).

2020: Statistically significant difference between German-speaking Switzerland (D-CH) and the other two language regions ($p<0.01$)

2021: Only German-speaking Switzerland and French-speaking Switzerland (F-CH) differ statistically significantly ($p<.05$)

2022: Statistically significant difference between French-speaking Switzerland and the other two language regions ($p<.01$)

2024: Significant differences between all three regions ($p<.01$).

German-speaking Switzerland: decrease between 2020 and 2021 statistically significant ($p<.01$), increase between 2022 and 2024 also statistically significant ($p<.01$).

French-speaking Switzerland: 2024 shows a statistically significant increase compared to 2022 ($p<.01$), the previous years do not differ significantly from 2020.

Canton Ticino (TI): no statistically significant changes between 2020 and 2024.

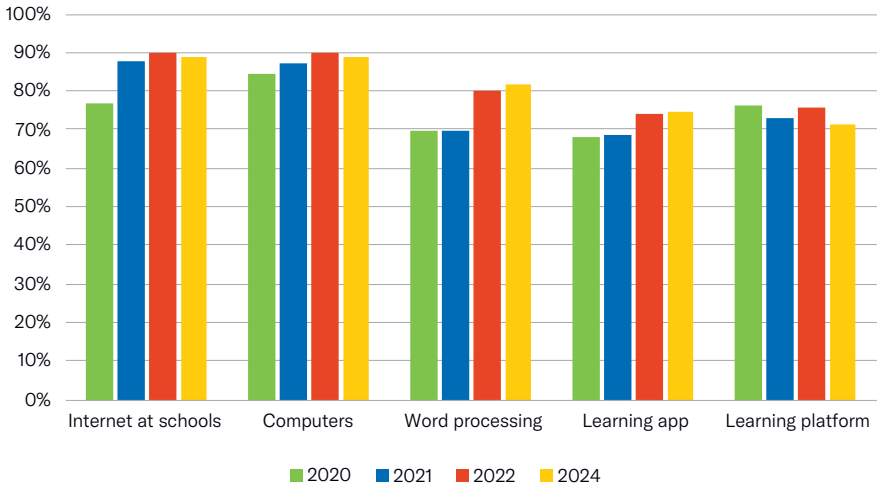
The educational background of the parents is not decisive for the frequency of computer purchases. However, if all types of devices are considered for purchases (including smartphones, e-readers, etc.), there are differences according to the educational background of the parents. Students whose parents have a university degree reported slightly more frequent purchases overall (difference of three percentage points, significance level of 5%) than students with parents without a post-compulsory qualification.

5. Trend towards digitalisation stabilises

After the four surveys, the small surge in digitalisation in schools between 2020 and 2022 has now mostly levelled off at the 2022 level in 2024 (Figure 2). Students were asked whether they had internet access at school and whether they themselves used computers (desktop, laptop, or tablet) at school. They were also asked whether they used

digital tools such as word processing programmes, learning apps, and learning platforms either at school or for school-related purposes at home. The frequency of use was not considered here (see section 8 on frequency of use). Information on the duration of use or the specific purposes of use was not collected.

Figure 2: Internet at schools and use of digital tools at or for school



Note: n_{20}= 5592, n_{21}= 5819, n_{22}= 5375, n_{24}= 5419 5419 (varies slightly depending on the item); considering individual characteristics.

Internet at schools and use of computers: significant differences between 2020 and 2021 and between 2021 and 2022 (p<.01), 2022 and 2024 (p<.05).

Word processing and learning app: the results differ statistically significantly between 2020 and 2022 (p<.01)

Learning platform: Significant differences between 2020 and 2021 (p<.01) and between 2021 and 2022 (p<.05), 2022 and 2024 (p<.01).

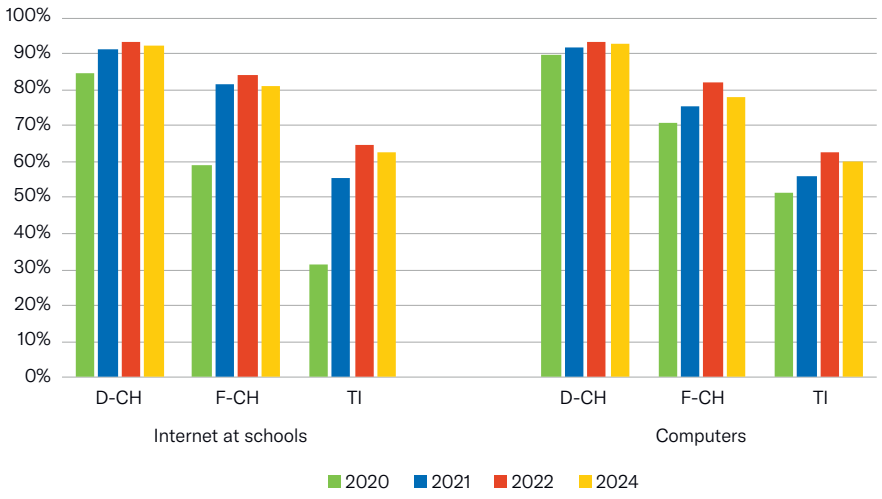
6. Regional language differences persist – despite the catch-up effect

Even after four surveys, the regional differences in internet at schools and the use of computers at schools are still clearly visible. Although there were clear catch-up effects in French-speaking Switzerland and the canton of Ticino in 2021 and 2022, the proportion of students who reported using the internet at school and computers at school is still significantly higher in German-speaking Switzerland (Figure 3).

In French-speaking Switzerland, the proportion of students who reported using the internet at school increased significantly between 2020 and 2022 and remained stable in 2024 (82%). There was also a significant increase in computer use between 2020 and 2022 (from 72% to 82%). Although the rates are still lower in the canton of Ticino, there

was also a significant increase here over the same period. The proportion of students who reported using the internet at school rose significantly between 2020 (31%) and 2022 (64%) and has remained stable since then. A similar pattern can be seen in computer use, which also increased during this period and then stabilized.

Figure 3: Internet at schools and use of computers at school by language region



Note: n_{20} = 5584, n_{21} = 5769, n_{22} = 5334, n_{24} = 5419 (varies slightly by item); considering individual characteristics.

Internet at schools: The language regions differ statistically significantly at all points in time (p<.01). The increase between 2020 and 2021 is statistically significant in all language regions (p<.01). In the canton of Ticino, the increase between 2021 and 2022 is also statistically significant (p<.01). The decrease between 2022 and 2024 is statistically significant in French-speaking Switzerland (p<.05), but not in the other two language regions.

Use of computers: The language regions differ statistically significantly at all points in time (p<.01). The increase between 2020 and 2022 is statistically significant in all language regions (p<.01). The decrease between 2022 and 2024 is statistically significant in French-speaking Switzerland (p<.05), but not in the other two language regions.

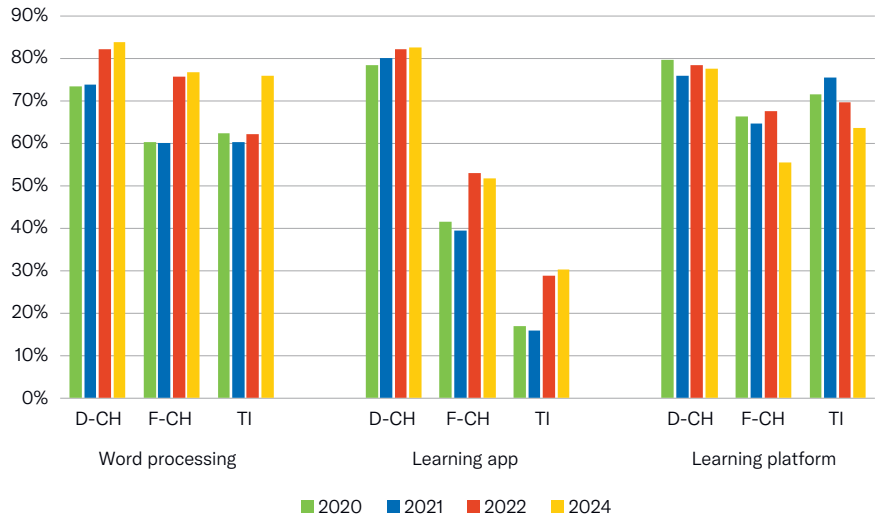
There are also major regional differences in the use of digital tools at school or at home for school. In the case of word processing programmes, there are clear differences between German-speaking Switzerland and the other two language regions in every survey. A relevant increase can be seen in all regions in 2022, after no relevant changes were observed between 2020 and 2021. From 2022 onwards, the usage rates remain stable in all regions.

By far the greatest regional differences are seen in the use of learning apps. While German-speaking Switzerland consistently has the highest usage rates, the rates in the other two language regions remain significantly lower, although an increase can also be

seen here. There is a significant increase in all three language regions in 2022, while the rates before and after remained stable.

The use of learning platforms or digital learning environments shows clear regional differences in each survey. While the fluctuations in German-speaking and French-speaking Switzerland between 2020 and 2022 are negligible, a decline can be observed in both regions in 2024. In the canton of Ticino, usage remains stable, with no relevant changes over time.

Figure 4: Use of digital tools at or for school by language region



Note: (n_{20}= 5592, n_{21}= 5819, n_{22}= 5375, n_{24}= 5419 (varies slightly depending on the item); considering individual characteristics.

Word processing programmes: In German-speaking and French-speaking Switzerland, the differences are only statistically significant between 2021 and 2022 (p<.01). Ticino: The increase between 2022 and 2024 is statistically significant (p<.01).

Learning app: The language regions differ statistically significantly at all points in time (p<.01). For all three language regions, only the increase between 2021 and 2022 was statistically significant (D-CH: p<.05, F-CH and Ticino: p<.01).

Learning platform/learning environment: The language regions differ statistically significantly at all points in time, except for French-speaking Switzerland and the canton of Ticino in 2022. In German-speaking Switzerland, the decline between 2022 and 2024 is statistically significant (p<.01). In French-speaking Switzerland, only the difference between 2022 and 2024 is statistically significant (p<.01). In the canton of Ticino, the differences between 2021 and 2022 and 2022 and 2024 are statistically significant (p<.05).

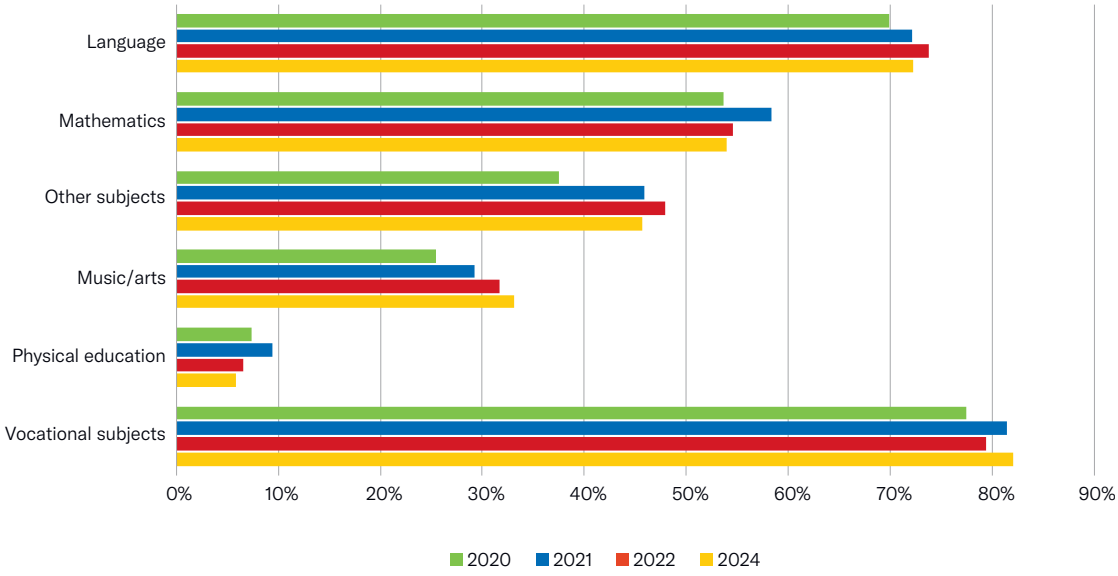
7. Use of digital tools in the various school subjects

There is no uniform trend towards increasing digitalisation across the various school subjects. The vocational subjects and language teaching show consistently high proportions, while the increase in mathematics in 2021 was an outlier and the usage rates have stabilised again at the 2020 level. Only in music and arts is the use of digital aids

increasing continuously, albeit at a low level. The different developments are explained in more detail below.

In language lessons, the proportion of students who reported using digital tools in the period between Christmas and Easter was already at a relatively high level in 2020 (just under 70%). Between 2020 and 2022, this proportion increased slightly and remained stable at around 72% between 2022 and 2024. The proportion of students who reported using digital aids in mathematics lessons initially rose between 2020 and 2021. From 2022, however, the proportion fell back to the initial level of around 54% and remained there. For the "other subjects" category, there was only a boost between 2020 and 2021 (from 36% to 45%). Between 2022 and 2024, the proportion remained largely stable at around 44%. In physical education, the use of digital aids remained at a low level overall. The proportion initially rose slightly between 2020 and 2022 to just under 9% but fell again to around 6% by 2024. This development shows that there is, after an initial increase, no long-term trend in the use of digital aids in physical education. The use of digital aids is highest in vocational subjects. This remains at a consistently high level and shows a relatively stable development between 2020 and 2024, from around 77% to 82%, with no significant differences between the individual years.

Figure 5: Use of digital tools by school subject



Note: Language, mathematics and physical education incl. basic vocational education (VET) n_{20}= 5375, n_{21}= 5625, n_{22}= 5180, n_{24}= 5419; other subjects and music/arts without VET n_{20}= 4745, n_{21}= 5191, n_{22}= 4619, n_{24}= 4893; vocational subjects only VET n_{20}= 630, n_{21}= 434, n_{22}= 561, n_{24}= 526 (varies slightly depending on subject); considering individual characteristics.

Language: The difference between 2020 and 2022 is statistically significant (p<.01). The results of the other surveys do not differ statistically significantly.

Mathematics: The difference between 2020 and 2021 is statistically significant (p<.01), the decrease between 2021 and 2022 is also significant (p<.01). There is no statistically significant difference between 2022 and 2024.

Other subjects: The difference between 2020 and 2021 is statistically significant (p<.01). The other differences are not statistically significant.

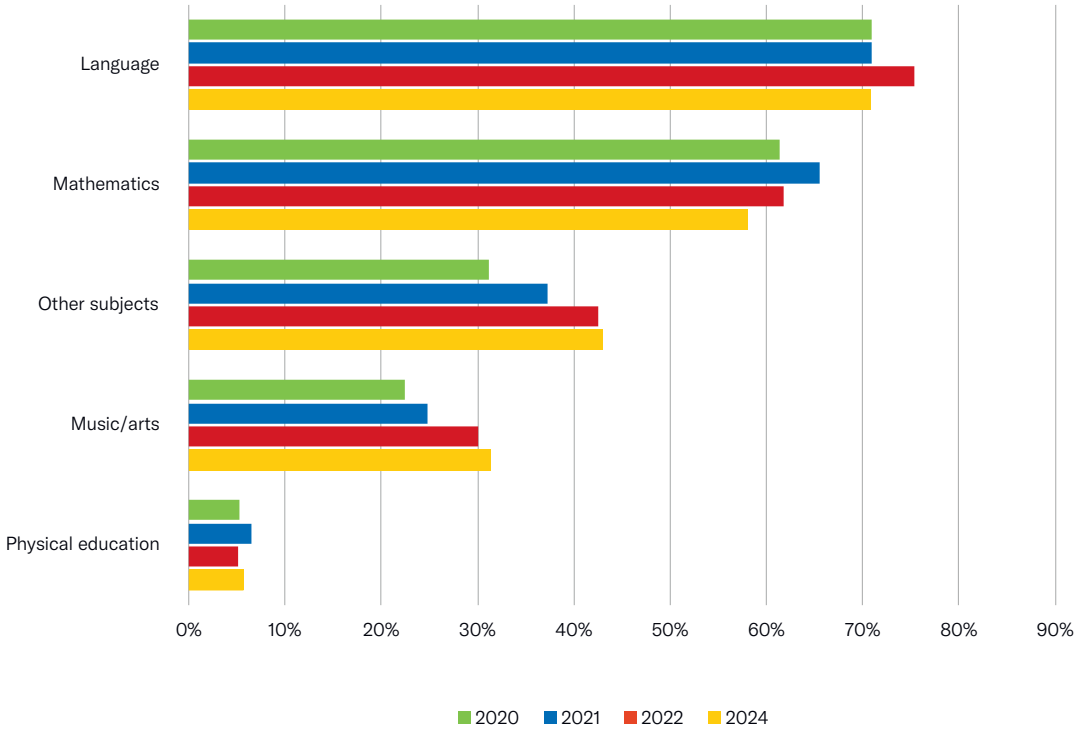
Music/arts: The increase between 2020 and 2021 is statistically significant (p<.01), as is the increase between 2021 and 2022 (p<.05). The difference between 2022 and 2024 is not statistically significant.

Physical education: Difference between 2020 and 2021 statistically significant (p<.01), decrease between 2021 and 2022 also statistically significant (p<.01), no statistically significant difference between 2022 and 2024.

Vocational subjects: There are no statistically significant differences between the surveys.

If we look at the use of digital tools by school subject for primary level only (Figure 6), the results are like those when all levels of education are considered. Regarding the results shown for the school subjects, it should be noted that the data may include use by both students and teachers. The recorded use includes both children who have only done an exercise on the iPad once or twice in maths lessons and students who use digital learning programmes in every lesson. It could also include situations in which the teacher used digital tools to enter completed work by students on an electronic list. Furthermore, no distinction is made between frequency and duration of use. This means that not every person who stated that digital tools were used in mathematics lessons used them themselves – and not necessarily daily – but merely that digital tools were used in mathematics at all. In other words, this also means that in 2024, over 40% of students stated that they had never used digital tools in maths lessons.

Figure 6: Use of digital tools at primary level



Note: n_{20}= 2584, n_{21}= 3149, n_{22}= 2486, n_{24}= 2901 (varies slightly depending on subject); considering individual characteristics.

Language: The results of the 2022 survey differ statistically significantly from all other surveys (p<.01).

Mathematics: All surveys differ statistically significantly from each other (p<.01), except between 2020 and 2022 the difference is not statistically significant.

Other subjects: The results of the 2020, 2021 and 2022 surveys are all statistically significantly different (p<.01). There is no statistically significant difference between 2022 and 2024.

Music/arts: Only the results of the 2020 and 2022 surveys are statistically significantly different (p<.01).

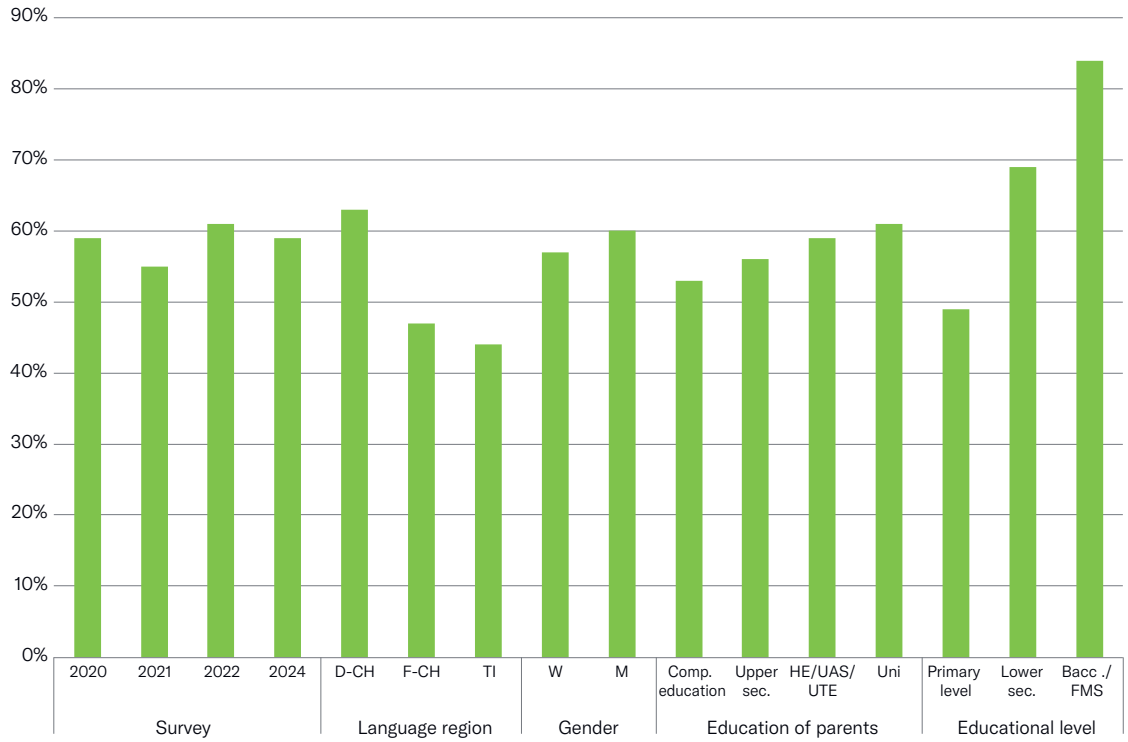
Physical education: Only the results of the 2021 and 2022 surveys are statistically significantly different (p<.05).

8. Frequency of computer use at school

The results of the surveys also provide insights into the intensity of use of digital tools. The analysis of students who stated that they use computers at school on a daily basis shows that they are significantly more likely to come from German-speaking Switzerland and already attend upper-secondary level. The 2021 survey had the lowest rate of daily computer use of the four survey dates. Apart from this lowest value, there are no relevant differences between the other survey dates, which indicates that daily use has remained stable overall over the years. It should be noted, however, that no information is available on duration of use. Students in basic vocational education and training are excluded from these analyses as they do not attend school daily.

Figure 7: Daily use of computers at schools

The percentages represent the proportion of all students who reported using the computer (desktop, laptop, tablet) daily.



Note: Without VET, n=20048; considering individual characteristics.

Surveys: 2022 is statistically significantly different from all other surveys, which are not statistically significantly different from each other (p<.01);

Language region: The results for German-speaking Switzerland are statistically significantly different from the results for the other language regions (p<.01), the difference between French-speaking Switzerland and the canton of Ticino is statistically significant (p<.05). The gender difference is statistically significant (p<.01).

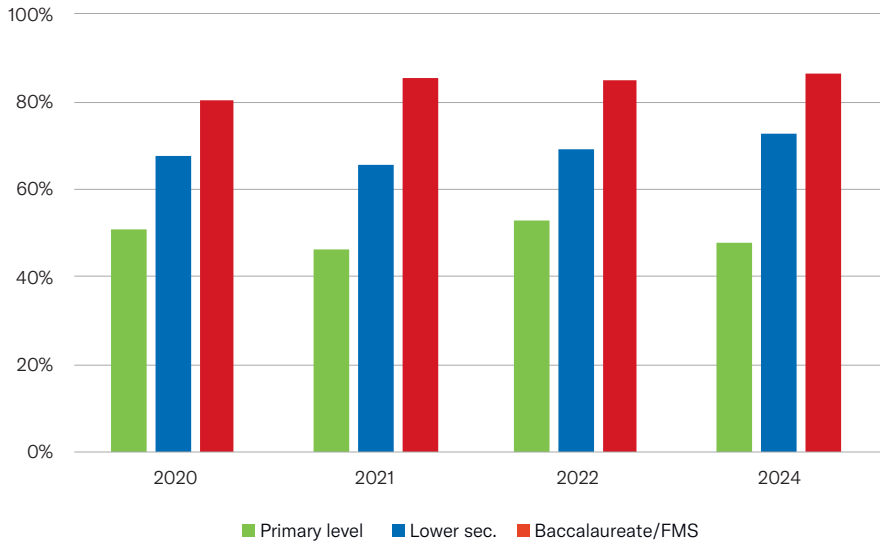
Education of parents: Students whose parents do not have a post-compulsory qualification differ statistically significantly from those whose parents have a higher education degree, as well as from children of university-educated parents (p <.01).

Educational level: The results of all levels differ statistically significantly (p<.01)

The daily usage rates between primary level, lower-secondary level, and baccalaureate school as well as upper-secondary specialised schools differ significantly at each survey point. There are different developments within the levels, which are also statistically significant. For example, in 2021, after the year with the temporary school closures, there was a decline in the number of students reporting daily computer use at primary level. However, the changes across the survey dates are all small and do not show any strong trends towards more intensive computer use.

Figure 8: Daily use of computers at school by level

The percentages represent the proportion of all students who reported using the computer (desktop, laptop, tablet) daily.



Note: Without VET, n=20048; considering individual characteristics.

Levels: The levels differ statistically significantly at each survey time point (p<.01).

Primary level: The rate of each survey is statistically significantly different from the previous rate (p<.01). The results of the 2020 and 2024 surveys are not statistically significantly different.

Lower-secondary: Only the increase between 2021 and 2022 is statistically significant (p<.05). The results of the 2020 and 2024 surveys are statistically significantly different (p<.01).

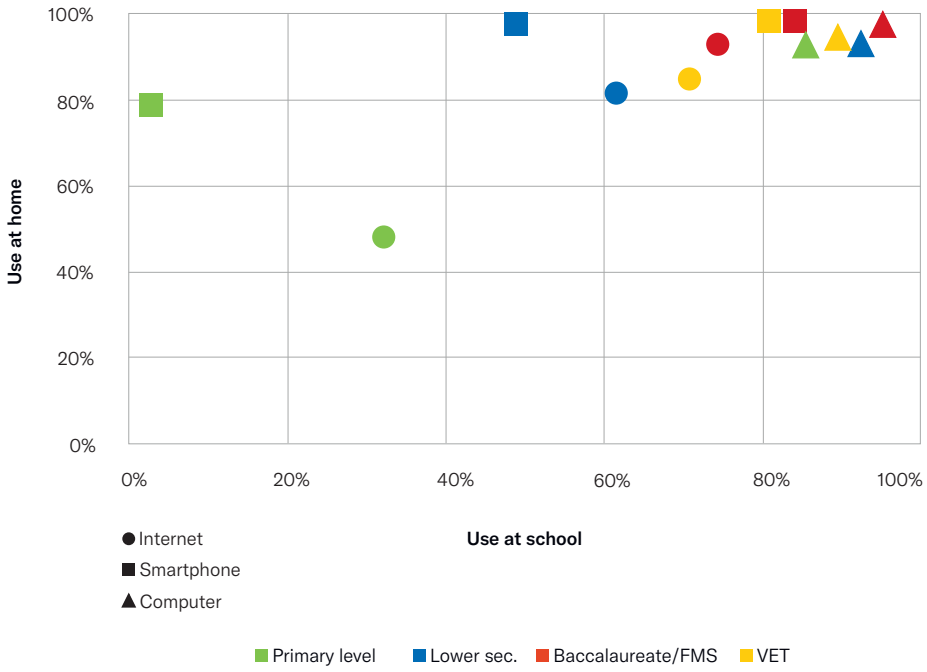
Baccalaureate school/upper-secondary specialised school (FMS): Only the increase between 2020 and 2021 is statistically significant (p<.05).

9. Use at home versus use at school

The use of digital tools in schools is also critically discussed, particularly regarding their impact on students' learning behaviour. Although a general trend towards more digitalisation in schools is observed in this monitoring, the data also shows that the intensity of use is not very high and has not increased significantly in the last four years. However, there is a clear pattern in the use of computers, the internet, and smartphones. Students report significantly more intensive use at home compared to school. Only the results of the 2022 and 2024 surveys were considered to rule out increased use at home due to the pandemic. The clearest difference can be seen at primary school level and specifically in the controversial use of smartphones. Only 3% of primary school students use their smartphone at school, while almost 80% use it at home. From lower-secondary

level onwards, the proportion of computer users at school is significantly higher than at primary level. At the same time, the difference between use at school and at home decreases with the higher school levels. From lower-secondary level onwards, students are now increasingly using smartphones at school, but there are still major differences compared to private use. While the proportion of students who use a smartphone privately is practically 100%, only 50% use it at school at lower-secondary level and 80% at upper-secondary level. In terms of internet use, around a third of primary school students report unlimited internet access at school, while the proportion at home is 50%. With the higher school levels, this proportion increases significantly both at school and at home but is always higher at home than at school.

Figure 9: Use at home and use at school by level



Note: Only survey 2022 and 2024 included computer use n=10794; smartphone use n=10794; internet access at home n=10319; internet access at school n=8914 (varies slightly depending on item); considering individual characteristics.

Computer use at home: Baccalaureate school/FMS significantly different from all other levels ($p<.01$).

Computer use at school: All levels differ statistically significantly from each other ($p<.01$).

Smartphone use at home: Only the primary level differs statistically significantly from all other levels ($p<.01$).

Smartphone use at school: Baccalaureate school/FMS and VET do not differ significantly, while all other levels differ significantly ($p<.01$).

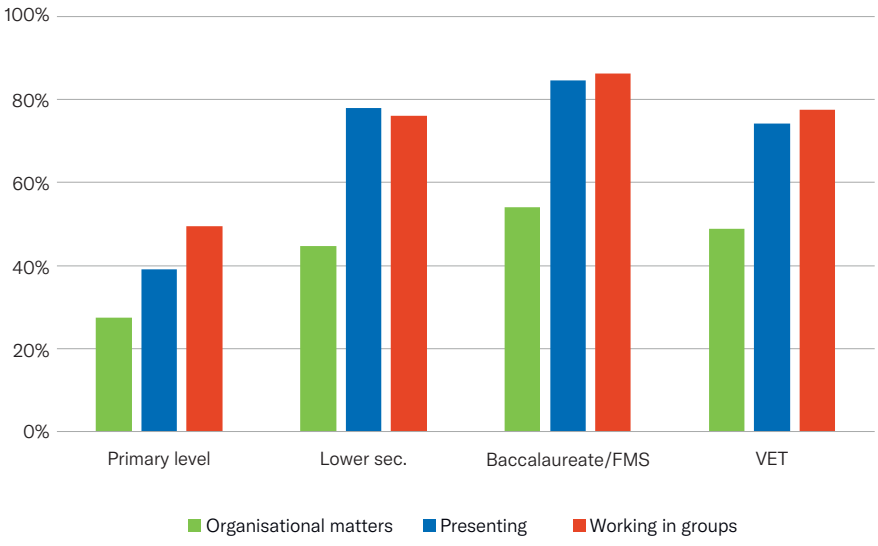
Unlimited internet access at home: There are statistically significant differences between all levels of education ($p<.01$); lower-secondary school and VET ($p<.05$).

Unrestricted internet access at school: There are statistically significant differences between all levels of education ($p<.01$), apart from Baccalaureate school/FMS and VET which do not differ significantly from each other.

10. Type of use

The monitoring survey also investigates the extent to which students use digital communication with teachers primarily for organisational purposes and the extent to which they actively use digital tools for specific tasks in class. Around 30% of primary school students stated that the exchange with the teacher using digital tools was mainly for organisational purposes – this means that when teachers use digital tools to communicate with the children, it is mainly for organisational processes such as appointments or class information. However, a larger proportion reported that they actively worked with digital applications, be it for group work or presentations. From lower-secondary level onwards, the active applications are all significantly higher than the use of digital applications for purely organisational purposes. For example, over 84% of baccalaureate school students stated that they gave presentations in digital form (e.g. using PowerPoint).

Figure 10: Type of use of digital tools



Note: Only surveys 2022 and 2024 included, n=10687 (varies slightly depending on item); considering individual characteristics.

Organisational matters: There is a statistically significant difference ($p<.01$) between the results of the primary level, lower-secondary level and the Baccalaureate school/FMS. The results of vocational education differ statistically significantly ($p <.05$) from those of lower-secondary level and Baccalaureate school/FMS.

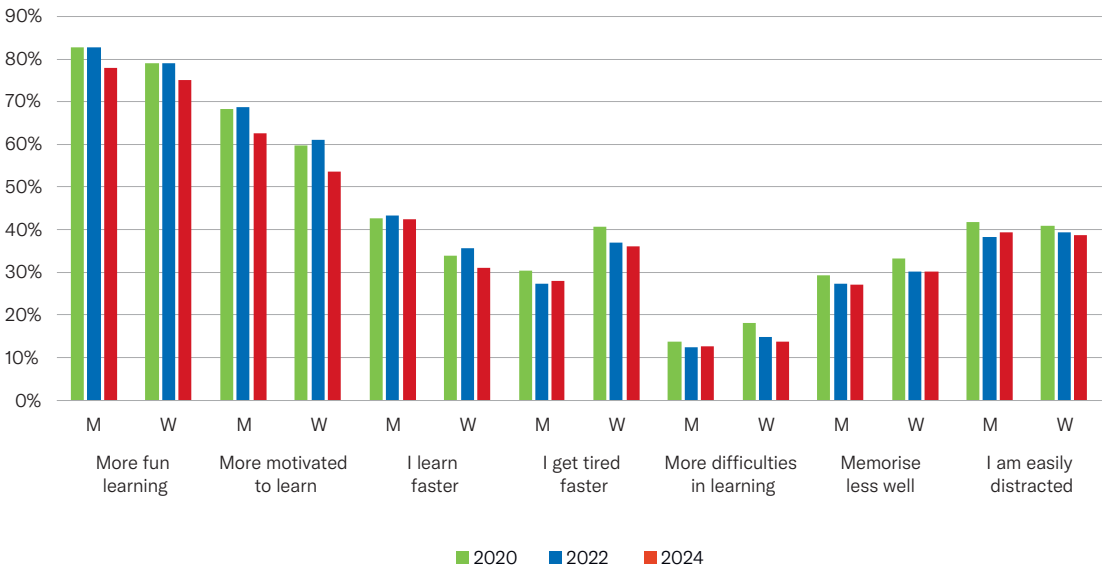
Presenting: All levels differ statistically significantly from each other ($p<.01$); lower-secondary level and VET ($p<.05$).

Working in groups: All levels differ statistically significantly from each other ($p<.01$), except for lower-secondary level and VET.

11. Attitude towards learning with digital tools

Students in Switzerland are generally positive about learning with digital aids (Figure 11) when they compare it with learning in conventional form (books, paper and pencil). Nevertheless, there is a slight trend towards a lower approval rate for positive aspects such as "more fun learning" and "more motivated to learn" (for both genders), with the decline only becoming apparent between 2022 and 2024. Overall, all positive and negative aspects of the use of digital tools show very stable figures across all survey dates. The two findings that the monitoring provides are, firstly, that the differences by gender, particularly in terms of motivation to learn and faster learning or faster fatigue, are constant and that men are better at using digital tools. Secondly, regardless of the slight changes over time, the subjectively positive aspects of learning with digital tools clearly outweigh the negative aspects. While only around one in seven female and one in nine male students reported more difficulties when learning with digital tools compared to analogue forms of learning, one in two female and two in three male students said that they were more motivated to learn with digital tools.

Figure 11: Attitude towards learning with digital tools by gender



Note: n_{20}= 5302, n_{22}= 5135, n_{24}= 5355 (varies slightly depending on the item); considering individual characteristics.

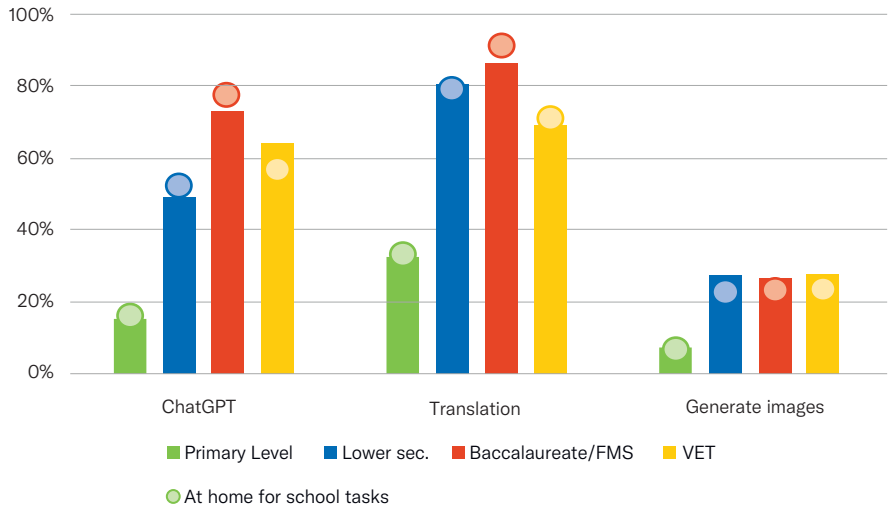
Gender difference: Most of the differences are statistically significant (p<.05); exceptions for "More difficulties in learning" in 2024, "Memorise less well" in 2022, and "I am easily distracted" 2020 to 2024 are not statistically significant.

Change between the survey dates: For male respondents (M), the differences for “More fun learning" and "More motivated to learn" (2022–2024) are statistically significant (p<.01); for "I get tired faster" and "I am easily distracted" (2020–2022) also (p<.05). Female respondents (F) showed statistically significant differences (p<.01) for "More fun learning", "More motivated to learn" and "I learn faster" (2022–2024) as well as for "I get tired faster", "More difficulties in learning" and "Memories less well what I have learnt" (2020–2022) (p<.05).

12. Artificial intelligence has arrived in schools

In 2024, children and young people were asked for the first time about the use of AI tools such as ChatGPT and other generative language models, AI-based translation applications and image generation programmes both in class and at home for school tasks as part of the digitalisation monitoring process. These are the first and currently only representative results for Switzerland that show how widespread the use of such AI applications is among 8 to 18-year-olds. While only a small proportion of primary school children stated that they use AI applications both at school and at home, this proportion increases sharply from lower-secondary level onwards. Particularly at baccalaureate school and in vocational education, a clear majority of students reported using AI applications such as translation tools or generative language models - both in lessons and for homework and exam preparation. The use of graphics programmes, on the other hand, remains at a lower level at all school levels and in all types of education. Interestingly, the usage rate of AI applications at school is almost everywhere at the same level as for private applications for school purposes. There is therefore no observable gap between use in schools and private initiatives at home.

Figure 12: Use of AI in class and at home for school tasks



Note: n=5364 (varies slightly depending on item); considering individual characteristics.

ChatGPT in class: All levels differ statistically significantly from each other (p<0.1).

Translation in class: All levels are statistically significantly different from each other (p<0.1).

Generate images: Only the primary level is statistically significantly different from the other levels (p<.01).

ChatGPT at home: Lower-secondary school and VET are not statistically significantly different; all other levels are (<.01).

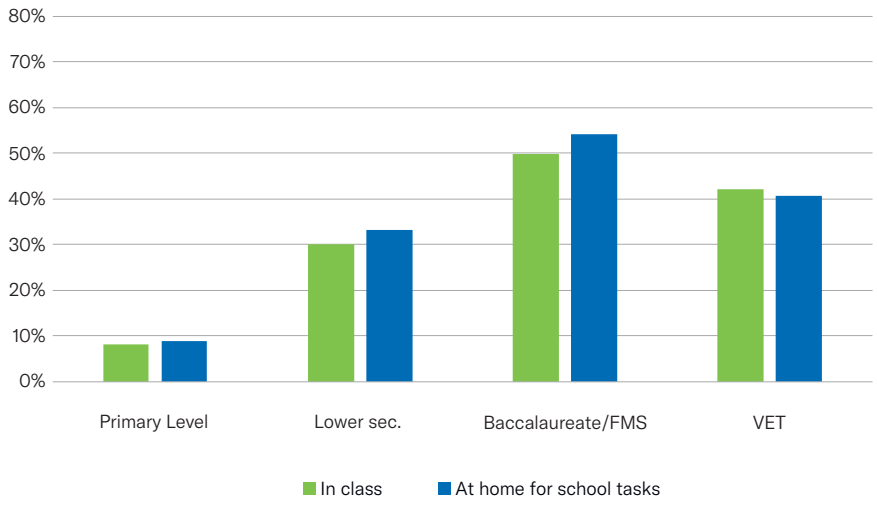
Translation at home: All levels differ statistically significantly from each other (p<0.1).

Generate images at home: Primary level is statistically significantly different from the other levels (p<.01).

While figure 12 shows the general prevalence of AI use in class and at home for school tasks, figures 13 and 14 also show the proportion of students who use these AI-supported tools at least once a week or more frequently. It is striking that those in basic vocational training reported less regular and frequent use of AI tools such as ChatGPT and translation programmes than those in baccalaureate schools and upper-secondary specialised schools. Students in basic vocational training also use these tools more frequently in class than at home, while the opposite is true for students at general education schools.

Figure 13: Frequency of use of AI such as ChatGPT (generative language models)

The percentages represent the proportion of all students who reported using generative language models such as ChatGPT at least once a week or more.



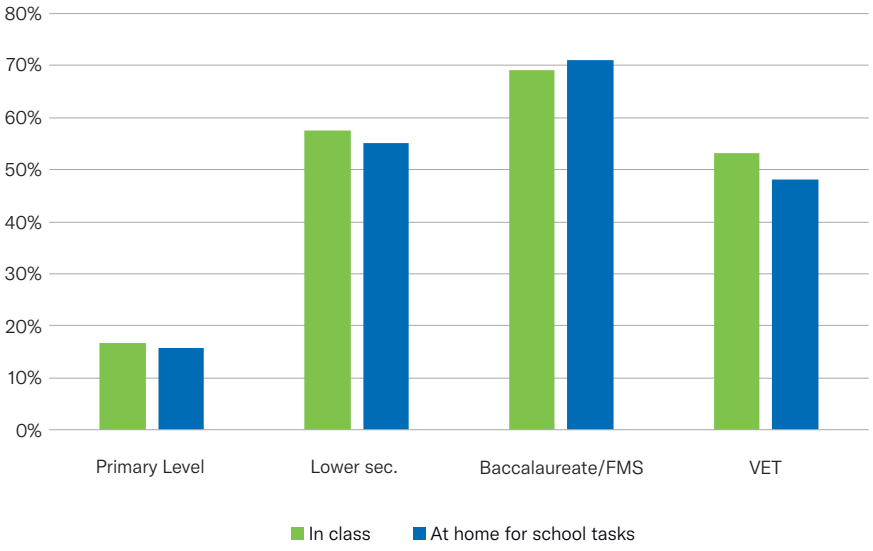
Note: n=5419; considering individual characteristics.

ChatGPT in class: All levels are statistically significantly different from each other (p<.01).

ChatGPT at home for school tasks: All levels are statistically significantly different from each other (p<.01).

Figure 14: Frequency of use of AI such as DeepL (AI-assisted translation)

The percentages represent the proportion of all students who reported using AI-supported translation tools such as DeepL at least once a week or more.



Note: n=5419; considering individual characteristics.

Translation tool in class: All levels differ statistically significantly from each other (p<.01).

Translation tool at home for school tasks: All levels are statistically significantly different from each other (p<.01).