Education and digital inequalities during COVID-19 confinement: From the perspective of teachers in the French speaking Community of Belgium

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Abstract
To curb the spread of the COVID-19 pandemic, the federal government and the federated entities of Belgium suspended all face-to-face learning starting 14 March, 2020. A continuity of learning was to be ensured by teachers through distance-learning. However, teaching during the confinement period was complicated for teachers: the respect for policies and rules differs from one teacher to another and there has been a lack of follow-up on online learning for some learners. The purpose of this article is to contribute to initial responses to the vast question of educational inequalities created and exacerbated during the crisis. More particularly, this article provides a situational analysis of some potential causes for inequalities in primary and secondary schools and identifies differences between the two education levels. Our analysis draws on responses from almost 500 teachers participating in a large-scale survey in the French speaking Community of Belgium. The analysis focuses on teaching practices and observations made by teachers during the confinement period. Various factors contributing to inequalities are identified as well as differences between the two levels of education. Relevant factors include the technological equipment available to students, and the use of pedagogical practices such as differentiation and Remediation-Consolidation-Surpassing (RCS). After confinement, at the beginning of the 2020–2021 school year, teachers have faced more diverse classes, with learners who
have experienced very different confinement situations. In light of our analysis of survey responses, we highlight the role of the technological equipment used by the teacher as a factor that increases inequalities.

### 1 | TEACHING IN THE FRENCH SPEAKING COMMUNITY IN BELGIUM DURING THE COVID-19 HEALTH CRISIS

The COVID-19 health crisis led to national confinement measures in Belgium. The National Security Council, consisting of the federal government and the federated entities, decided to suspend face-to-face lessons starting 16 March 2020 in the French speaking Community of Belgium, which in this article is referred to as the Wallonia-Brussels Federation (FWB). Following this decision, several circulars were drafted for stakeholders in French-speaking Belgian schools to limit, by rules and recommendations, inequalities between learners during confinement. Circular 7508 (13 March 2020) communicates several recommendations to which teachers had to comply following the closure of schools. For example, teachers were mandated to not schedule homework and to recognise missed school days as justified. Circular 7515 (17 March 2020) supplemented the previous circular by providing new information about how the continuity of learning was to be organised. It mentions that homework assignments may be sent to students only on condition that they do not involve new learning. Students can be assigned activities that aim for Remediation-Consolidation-Surpassing (RCS), these are activities that address content previously discussed in class. Teachers should ensure that all work sent to learners is proportionate in content and time and is independently achievable. The circular further specifies that the requested work can only be assessed in a formative manner and should not under any circumstances be the subject of a summative evaluation. Teachers have to ensure that their learners have access to the materials offered, whether online or in hard copy. Finally, this circular insists on the importance of maintaining social ties with learners, especially through virtual, technologically supported solutions.

Following a new National Security Council introducing the strategy for reopening, new elements were proposed in Circular 7550 (25 April 2020). This stipulates that the majority of schools can reopen their doors. This measure aimed to allow learners to re-establish links with educational teams and to reinstate face-to-face learning within regulated limits. The reopening of schools proceeded in two phases. The first phase started on 18 May 2020 and gave priority to some learners. Students returning to face-to-face learning were in sixth grade in primary schools (6th grade) and in the last year of secondary school (12th grade). These students returned to school twice a week with a restricted group of learners. The second phase started on 25 May 2020, it allowed other students to return to school. A restricted group of learners in first or second grade at primary schools went to school once a week. A restricted group of learners in their second year of secondary school (8th grade) went to school for a maximum of two days a week. Moreover, the teachers were expected to identify students who need a closer follow-up due to academic difficulties or specific learning needs. For re-establishing contact with their teachers, it was possible for students to be invited to go back to their school up to once a week. The Government decided to cancel the external certification exams for all students. Education teams or juries and class councils were therefore obliged to study the conditions for student success. Finally, Circular 7599 (27 May 2020) announced the last two phases for resuming face-to-face learning. Starting preschool classes resumed full-time on 2 June 2020 and primary education on 8 June 2020. No changes were announced regarding secondary education at the time.
The aforementioned circulars highlight to some extent the question of educational inequalities. In general terms, educational inequalities are about equality of access, results, achievements, opportunities and how students are treated (Dupriez & Vandenberghe, 2004); specifically, in the context of teaching and learning (Marope, 2015; UNESCO, 2014). Inequalities in teaching and learning can include differences between students in access to lessons and programmes given but also in the daily activities (assessment and remediation) offered by teachers (UNESCO, 2014). Rose (2015) identifies twin problems that restrain learning and result in wide inequalities: home background and teaching quality. Other authors (e.g., van Dijk & van Deursen, 2010) evoke inequalities by adding the digital dimension. Robinson et al. (2015) argue that

\[\ldots\] digital inequality deserves a place alongside more traditional forms of inequality in the twenty-first century pantheon of inequalities \[\ldots\] because it is increasingly clear that individuals' digital engagements and digital capital play key roles in a range of outcomes, from academic performance to labor market success to entrepreneurship.

(Robinson et al., 2015, p. 570)

Digital inequalities can be conceptualised as

\[\ldots\] emerging from the differences in actual access to technology, as well as differences in digital literacy—the degree to which individuals have the capacity, knowledge, motivation and competence to access, process, engage and understand the information needed to obtain benefits from the use of digital technologies, such as computers, Internet, mobile devices and applications.

(Beaunoyer et al., 2020, p. 2)

In this article, the term educational inequities is used to refer to inequalities in teaching and learning and digital inequalities.

Although all education systems and all countries present inequalities in education and heterogeneity in learner performances (Demeuse & Baye, 2008), Belgium presents one of the starkest performance gaps between high and low-achieving students (Baye et al., 2006). Dupriez and Vandenberghe (2004) have shown that inequalities are more conspicuous in the French speaking Community of Belgium. When compared to other countries, the social and cultural characteristics of families have a greater impact on test-scores of students in Belgium—in mathematics, reading and sciences. Other research (e.g., De Witte & Hindriks, 2017) highlights little social mobility and considerable inequalities between schools in Belgium, especially in FWB (see Danhier & Friant, 2019, on impact of free school choice; Dupriez & Dumay, 2006, on impact of differentiated school systems; Lafontaine & Monseur, 2011, on social and academic segregation, etc.). In order to reduce these educational inequalities, a large-scale reform called the Pacte pour un enseignement d’excellence [Pact for an excellent education] was commenced in 2015. This reform is the product of strong collective work of different education actors and partners (politicians, researchers, teachers, parents, etc.) and aims to strengthen the quality of education for all learners on three levels. The first level aims to establish a common core starting from the first year of preschool education until the third year of lower-secondary education (Central Group, 2017). The second level seeks to reduce school retention practices and the third one is to increase practices of differentiation. Differentiation practices are defined in the Décret Missions² (Ministère de la Communauté Française, 1997) as teaching methods that are adapted to consider the heterogeneity of classes, the diversity of learning needs of learners and their modes of learning; the aim of which is to advance learners at their own pace.
While the health crisis has postponed some axes of the *Pacte pour un enseignement d'excellence*, the situation has especially raised some questions about the impact of the crisis on educational inequalities that already existed. During the COVID-19 pandemic in 2020, the question about educational inequalities was widely discussed between various actors including the general public (e.g., Coalition des parents de milieux populaires, 2020; Hutin, 2020), education stakeholders (e.g., Devauchelle, 2020) and researchers (e.g., Armitage & Nellums, 2020; Doyle, 2020). Indeed, the closure of schools and the switch to distance education can exacerbate existing educational inequalities (Andrew et al., 2020; Di Pietro et al., 2020). Moreover, the global pandemic of COVID-19 is now related to the rising school dropout rate.

This article provides a first broad situational analysis of some potential causes of inequalities in primary and secondary education during the COVID-19 pandemic. Even if research shows that the home environment of learners ordinarily induces inequalities and probably more in case of distance learning (e.g., Andrew et al., 2020; Di Pietro et al., 2020), we investigate here other factors. The research on which this article reports sought to answer the following questions: What are the potential factors of educational inequalities created and exacerbated during COVID-19 confinement in primary and secondary education? Do teachers’ pedagogical decisions cause educational inequalities? Can we see the technology as a causal factor of educational inequalities? Furthermore, we have sought to determine whether the situation was similar at the level of primary and secondary schools. Indeed, most political measures at the two levels of education were the same, while realities may have differed.

The analysis of our findings supports a better understanding of the general situation and specific consequences of the crisis, for which we otherwise have only incidental information (e.g., comments from teachers). To this end, a survey was conducted at the end of the 2020 school year to assess practices and observations among primary and secondary teachers during COVID-19 confinement. This article is structured as follows. First, the methodology is described; after which we present our analysis. We conclude by discussing our findings; notably, the role of the technological equipment used by the teacher as a factor that increases inequalities.

3 | METHODOLOGY

3.1 | Survey

A survey about practices preferred by teachers during the COVID-19 closure of schools was carried out between the end of June and the end of August 2020 in the FWB. The digital survey was developed using the online survey software tool LimeSurvey®. This survey covered a convenience sample of primary and secondary school teachers in the FWB. The survey was distributed via networking sites and social media to extend the scope of the survey because there is no single platform dedicated to the communication between francophone teachers in Belgium.

The aim of the survey was to identify teacher perceptions, practices and observations related to the COVID-19 confinement. To this aim, the survey included a total of 139 questions divided in three parts, with an estimated completion time of 20 min. The first part of the survey addressed the socio-demographic background of participants (e.g., age, gender, etc.) and information about their career (e.g., qualification, years of experience, grade, etc.). This information enables a deeper understanding of the sample. The second part of the survey collected information on teaching practices during the COVID-19 confinement. The third part of the survey collected teacher perceptions regarding the 2020–2021 back to school year.

This article only presents the results of the second part of the survey. It explores different factors for understanding how the COVID-19 confinement during the 2019–2020 school year has created and/or highlighted educational inequalities. This part of the survey mainly contained closed questions (MCQ, Likert scale) which are more adapted for analysis of large-scale surveys and making a first situational analysis. The content of the survey was shared with other surveys carried out in other countries (Delès et al., in press; Pirone, 2021) and was drawn from
exchanges with pedagogical actors (teachers, directors, etc.). It explored different factors which could a priori lead to inequalities. First, we addressed the technological equipment of teachers; a topic linked with inequalities because the technological equipment of teachers is likely to determine distance learning practices used for maintaining continuity in teaching (Weppe et al., 2020). Next, the survey included questions about specific pedagogical practices which can exacerbate or mitigate inequalities between learners:

- **actions to maintain social ties with learners**—a premise of all pedagogical actions and a high priority during COVID-19 confinement (Circular 7515; Baudouin et al., 2020)
- **distance learning specific practices**
- **practices of differentiation**—these are closely linked to teachers management of inequalities (i.e., Duroisin, Simon, et al., 2021; Duroisin et al., 2021b; Feyfant, 2016);
- **use of technologies**
- **content taught during activities**—to determine whether regulations for limiting inequalities (Circular 7515) were respected.

For analysing changes in practices (e.g., differentiation, usage of technologies), this section collected information also about practices used by teachers before the COVID-19 pandemic. This helped us to analyse whether an intensification of inequalities had taken place. Of course, we are aware that the list of practices explored is non-exhaustive and that some other factors could have been explored.

Finally, teachers were asked about their observations concerning learner dropout and the availability of technological equipment among students—factors that affect inequalities according to Di Pietro et al. (2020). Table 1 shows examples of questions in the survey.

### 3.2 | Sample

A total of 759 teachers responded to the survey in full or in part, 261 primary school teachers and 498 secondary school teachers. Only those questionnaires that were more than half-completed (N = 473) were analysed in the final sample. The final sample included 140 primary school teachers (30%) and 333 secondary school teachers (70%).

The survey sample contains more women (83%) than men (17%). A majority of participants were between 30 and 39 years old (37%), 26% were between 40 and 49 years, 18% between 20 and 29 years, 18% between 50 and 59 years and 2% were 60 or older. One quarter of these teachers had between 16 and 25 years of experience (25%), 22% between ten and fifteen years, 19% between five and nine years, 18% less than five years, 13% between 26 and 35 years of experience and 4% more than 35 years of experience.

### 3.3 | Statistical analysis

All the answers were coded, tabulated and statistically analysed using the software Jasp®. Descriptive statistics were conducted on the different closed questions. Chi-square tests ($\chi^2$) were used to quantify the differences between the primary and secondary school teachers. Furthermore, some cross-analyses were carried out (e.g., technological equipment and pedagogical decisions) using a contingency table approach. It is necessary to be aware that chi-square tests do not allow to discover links of causality between variables or to examine influences or impacts. However, chi-square tests provide additional information to enrich analyses about factors of educational inequalities.
4 | RESULTS

In the following, we present results about teachers’ technological equipment and subsequently their pedagogical decisions. The factor of teacher technological equipment is cross-analysed with teacher pedagogical decisions. The other parts present observations made by teachers about learners, they respectively describe results about the technological equipment used by their students during distance learning and student dropout. The results section concludes with two tables presenting statistical results for key questions—concerning equipment and teacher practice (Table 2), as well as equipment and student dropout (Table 3).

4.1 | Digital divide among teachers

Some questions of the survey related to the technological equipment that teachers work with. Although a majority of the teachers (88%) declared that their technological equipment was suitable to ensure the pedagogical continuity during the confinement, many of them (51.5%) faced difficulties with it. The chi-square test used to compare results between primary and secondary teachers is not statistically significant ($\chi^2 (2, 473) = 0.224, p = .894$).

4.2 | Lack of daily social ties

Teachers were free to use an individual or a collective way to maintain the social ties with their learners. The results of the survey reveal that only a minority of teachers did not try to contact their students individually (13.5%) or collectively (15%). The groups of teachers using collective and individual communication
were of similar proportions. The frequency of collective or individual meetings varied between teachers. Approximately 40% of teachers (41%) tried to contact their learners more than once a week individually. We found that 31.50% of teachers did not do individual meetings daily but tried to meet with learners more than once a week, and 10% tried to meet daily. A small proportion of teachers (22.5%) tried to contact students individually at least once a week, and a similar proportion of teachers tried to contact students individually less than once a week. There is no statistically significant difference between primary and secondary teachers ($\chi^2 (4, 473) = 4.604, p = .330$). Results indicate that 15% of teachers tried to contact students collectively on a daily or almost daily basis. A small proportion of teachers (34.5%) did not contact their students daily but tried to meet with them more than once a week. Some teachers (27%) tried to contact their students once a week and only 8.5% of teachers tried to contact students less frequently. There is a statistically significant difference between primary and secondary teachers ($\chi^2 (1, 473) = 28.102, p < .001$). A greater number of primary school teachers (28%), when compared to secondary teachers (9%), did not try to contact their students.

### 4.3 Variety of distance learning actions

Even though schools closed during the confinement, teachers could organise distance teaching practices to ensure pedagogical continuity. Practices needed to comply with regulations. Distance learning practices were proposed by 84.5% of teachers during the confinement; some teachers preferred not to propose distance learning practices (15.5%). There is a statistically significant difference between primary and secondary teachers ($\chi^2 (1, 473) = 11.251, p < .001$). These activities were proposed by more secondary teachers (88%) than primary teachers (75.5%). Among all teachers who had implemented specific actions in the context of distance learning, only 36% proposed holding teaching sessions using applications for videoconferencing. This shows that videoconferencing was not an important practice in distance teaching. The chi-square test highlights a statistically significant difference between primary and secondary teachers ($\chi^2 (1, 399) = 8.032, p = .005$) for the implementation of distance learning sessions using videoconferencing. More secondary teachers (40%) than primary teachers (24.5%) used videoconferencing for teaching online.

### 4.4 No compliance with the ban to teach new content

At the outset of the confinement, circulars related to COVID-19 measures prohibited the introduction of new content and asked to only address content previously discussed in class (RCS activities).

Roughly half of the teachers (46%) proposed only RCS activities at the outset of the confinement. However, there is a significant difference between primary and secondary teachers ($\chi^2 (2, 473) = 24.152, p < .001$). Over 60% of primary teachers (64.5%) declared they only offered RCS activities. At the secondary level of education, only 39% of secondary teachers proposed RCS activities at the outset of confinement.

At the outset of confinement, 29% of the teachers would have preferred to suggest new content. Significant difference between primary and secondary teachers is observed ($\chi^2 (2, 473) = 15.712, p < .001$). More secondary teachers (35%) than primary teachers (16%) wanted to teach new content.

Half of the teachers declared that they faced difficulties to only propose RCS activities as the confinement continued. Fewer primary teachers (37%) than secondary teachers (55.5%) experienced this difficulty ($\chi^2 (2, 473) = 12.193, p = .002$).

Despite the ban on teaching new content, 45% declared that they proposed activities which involved new content during the confinement period. More secondary teachers (53%) than primary teachers (22%) made this pedagogical choice ($\chi^2 (1, 399) = 31.312, p < .001$).
### Table 2: Teachers’ equipment and practices

| Was your technological equipment (PC, touchpad, Internet connection) suitable for continuing teaching practices during the confinement? |   |   |   |
|---|---|---|---|
| No, my technological equipment was not suitable | 12.5% | 13.5% | 12.01% |
| Yes, and I have not experienced any difficulties | 36% | 36% | 36.04% |
| Yes, but I experienced some difficulties | 51.5% | 50.5% | 51.95% |

\[ \chi^2 (2, 473) = 0.224, p = .894 \]

| During the confinement period, did you try to get in touch with learners | Individually | Collectively |   |   |   |
|---|---|---|---|---|---|
| Total Primary teachers Secondary teachers Total Primary teachers Secondary teachers |   |   |   |   |   |
| No | 13.5% | 18% | 12% | 15% | 28% | 9% |
| Yes, less than once a week | 22.5% | 21.5% | 23% | 8.5% | 9.5% | 8.5% |
| Yes, once a week | 22.5% | 20.5% | 23% | 27% | 15.5% | 32% |
| Yes, more than once a week | 31.5% | 28% | 33% | 34.5% | 23.5% | 39% |
| Yes, (almost) everyday | 10% | 12% | 9% | 15% | 23.5% | 11.5% |

\[ \chi^2 (4, 473) = 4.604, p = .330 \]

\[ \chi^2 (1, 473) = 28.102, p < .001 \]

| Did you introduce distance learning practices during the confinement period? |   |   |   |
|---|---|---|---|
| No | 15.5% | 24.5% | 12% |
| Yes | 84.5% | 75.5% | 88% |

\[ \chi^2 (1, 473) = 11.251, p < .001 \]

| Did you hold a distance learning session (by videoconferencing) during the confinement period? |   |   |   |
|---|---|---|---|
| No | 64% | 75.5% | 60% |
| Yes | 36% | 24.5% | 40% |

\[ \chi^2 (1, 399) = 8.032, p = .005 \]

(Continues)
During the confinement period, I have proposed activities ...

|                      | Total | Primary teachers | Secondary teachers | Total | Primary teachers | Secondary teachers |
|----------------------|-------|------------------|--------------------|-------|------------------|--------------------|
| Yes                  | 45%   | 21.5%            | 53%                | 95.5% | 98%              | 94.5%              |
| No                   | 55%   | 78.5%            | 47%                | 4.5%  | 2%               | 5.5%               |

χ² (1, 399) = 31.312, p < .001

During the confinement period, I mostly sought to ...

| ...Contribute prior learning | Total | Primary teachers | Secondary teachers | Total | Primary teachers | Secondary teachers |
|------------------------------|-------|------------------|--------------------|-------|------------------|--------------------|
| Yes                          | 87.5% | 92.5%            | 85.5%              |       |                  |                    |
| No                           | 12.5% | 7.5%             | 14.5%              |       |                  |                    |

χ² (1, 399) = 2.308, p = .129

| Did you actively seek to implement educational differentiation? | Before confinement? | During confinement? |
|---------------------------------------------------------------|---------------------|---------------------|
|                                                               | Total               | Primary teachers    | Secondary teachers | Total               | Primary teachers    | Secondary teachers |
| Yes, most of the time                                         | 42%                 | 67%                 | 31%                | 24.5%               | 31.5%               | 21.5%               |
| Yes, sometimes                                                | 51%                 | 31.5%               | 59%                | 43%                 | 40%                 | 44.5%               |
| No                                                            | 7%                  | 1.5%                | 10%                | 32.5%               | 28.5%               | 34%                 |

χ² (2, 473) = 54.418, p < .001

χ² (2, 395) = 3.994, p = .136

| Did you use ICT (information and communication technologies) | Before schools closed? | During the COVID-19 pandemic? |
|-------------------------------------------------------------|-------------------------|------------------------------|
|                                                             | Total                    | Primary teachers            | Secondary teachers |
|                                                             | Total                    | Primary teachers            | Secondary teachers |
| Never                                                       | 5%                       | 8%                           | 3.5%               | 1.5%               | 1.5%               | 1%                 |
| Rarely                                                      | 19.5%                    | 26.5%                        | 17%                | 4%                 | 8.5%               | 2%                 |
| Sometimes                                                   | 32.5%                    | 35%                          | 31.5%              | 5.5%               | 9%                 | 4%                 |
| Often                                                       | 31.5%                    | 23.5%                        | 34.5%              | 25.5%              | 34.5%              | 22%                |
| Always                                                      | 11.5%                    | 7%                           | 13.5%              | 63.5%              | 46.5%              | 71%                |

χ² (4, 473) = 15.889, p = .003

χ² (4, 473) = 29.715, p < .001

Source: Authors.
### Table 3: Teacher observations regarding student equipment and drop-out

| Among your class/classes, how many learners (more or less) had access to a digital device for schoolwork (tablet, smartphone, computer)? | Total | Primary teachers | Secondary teachers |
|---|---|---|---|
| 100% | 21% | 18.5% | 22% |
| More than 75% | 43% | 28% | 49.5% |
| Between 50% and 75% | 15.5% | 22% | 12.5% |
| Between 25% and 50% | 4% | 6% | 3% |
| Less than 25% | 3.5% | 7% | 2% |
| I do not know | 13% | 18.5% | 11% |

| During the confinement period, did your school lend computers or tablets to families in need, to ensure online learning? | Total | Primary teachers | Secondary teachers |
|---|---|---|---|
| No, none were needed | 10% | 14% | 8.5% |
| No, even if it was necessary | 62% | 77.5% | 55.5% |
| Yes, to some families in need | 20.5% | 4.5% | 27% |
| Yes, to all, or almost all, families in need | 7.5% | 4% | 9% |

\[ \chi^2 (3, 439) = 35.563, p < .001 \]

| Among your class/classes, during the confinement, how many learners (more or less) had access to a printer? | Total | Primary teachers | Secondary teachers |
|---|---|---|---|
| 100% | 0.5% | 2.5% | 0% |
| More than 75% | 9% | 14.5% | 7% |
| Between 50% and 75% | 14% | 19.5% | 11.5% |
| Between 25% and 50% | 15.5% | 14.5% | 15.5% |
| Less than 25% | 16% | 22% | 13.5% |
| I do not know | 45% | 27% | 52.5% |

| Among your class/classes, during the confinement, how many learners (more or less) had access to an Internet connection? | Total | Primary teachers | Secondary teachers |
|---|---|---|---|
| 100% | 19.5% | 19.5% | 19.5% |
| More than 75% | 46% | 38% | 49.5% |
| Between 50% and 75% | 13.5% | 18.5% | 11% |
| Between 25% and 50% | 6% | 7% | 5.5% |
| Less than 25% | 1.5% | 2.5% | 1.5% |
| I do not know | 13.5% | 14.5% | 13% |
Between your class/classes, how many learners (more or less) used a Smartphone? Computer?

|                      | Total | Primary teachers | Secondary teachers | Total | Primary teachers | Secondary teachers |
|----------------------|-------|------------------|--------------------|-------|------------------|--------------------|
| 100%                 | 1%    | 1%               | 1.5%               | 2%    | 4%               | 1%                 |
| More than 75%        | 10%   | 2.5%             | 13%                | 10%   | 7%               | 11%                |
| Between 50% and 75%  | 12%   | 8%               | 14%                | 13.5% | 12%              | 14.5%              |
| Between 25% and 50%  | 14%   | 15.5%            | 13.5%              | 14.5% | 16.5%            | 13.5%              |
| Less than 25%        | 14%   | 19.5%            | 11%                | 14.5% | 18%              | 13.5%              |
| I do not know        | 49%   | 53.5%            | 47%                | 45.5% | 42.5%            | 46.5%              |

Approximately how many learners constantly participated in distance learning activities?

|                      | Total | Primary teachers | Secondary teachers |
|----------------------|-------|------------------|--------------------|
| No one (or almost no one) | 2%    | 0%               | 3%                 |
| Approximately one quarter of learners | 23.5% | 16%             | 26.5%              |
| Approximately one half of learners | 28%   | 21%              | 30%                |
| Approximately three quarters of learners | 36%   | 52.5%            | 30%                |
| Everyone (or almost everyone) | 10.5% | 10.5%           | 10.5%              |

\( \chi^2 (4, 396) = 19.952, p < .001 \)

During the confinement period, did you propose activities which involved new content?

|                      | Number of learners constantly participated in distance learning activities |
|----------------------|---------------------------------------------------------------------------|
| No one (or almost no one) | No one (or almost no one)                                                  |
| Yes                  | Yes                                                                       |
| \( \chi^2 (4, 396) = 14.190, p = .007 \)

During the confinement period, I mostly sought to...

|                      | Number of learners constantly participated in distance learning activities |
|----------------------|---------------------------------------------------------------------------|
| ...Consolidate prior learning | ...Consolidate prior learning                                               |
| ...Develop new content | ...Develop new content                                                     |
| \( \chi^2 (4, 396) = 20.703, p < .001 \)

Source: Authors.
Nevertheless, if a part of teachers did not comply with the rules of circulars, 87.5% of teachers declared that they worked more on consolidating prior content than introducing new learning materials. More primary than secondary teachers worked on consolidating prior learning, but the difference is not significant ($\chi^2 (1, 399) = 3.271, p = .070$).

### 4.5 | Stagnation or decrease of differentiation practices

In a normal context, teachers would *sometimes* (51%) or *most of the time* (42%) practice pedagogical differentiation. Primary teachers declared to practice differentiation *most of the time* (67%) while many of the secondary teachers (59%) declared to *sometimes* practice the differentiation. Few teachers (7%) indicated that they did not practice differentiation in normal circumstances. The chi-square test highlights a statistically significant difference between primary and secondary teachers ($\chi^2 (2, 473) = 54.418, p < .001$).

During confinement, many teachers (43%) declared to *sometimes* practice educational differentiation. However, the rate of teachers who did not use differentiation strategies in their practices during the confinement is nearly a third of all teachers (32.5%). This demonstrates that teachers do not practice differentiation during confinement to the same extent as before confinement. Results come across as identical at both levels of education ($\chi^2 (2, 395) = 3.994, p = .136$).

The survey shows that 90% of teachers have stagnated (46.5%) or decreased (43.5%) and only 10% have increased differentiation practices during confinement (Figure 1). Primary teachers seem to have reduced their differentiation practices more than secondary teachers: 54.5% of primary teachers and 39% of secondary teachers have decreased their differentiation practices. In contrast, more than 10% of secondary teachers have increased differentiation practices during confinement compared to only less than 2% of the primary teachers. A statistically significant difference is observed between primary and secondary teachers for the evolution of this practice before and during the crisis ($\chi^2 (3, 395) = 16.290, p < .001$).

### 4.6 | Increase of ICT use mostly at secondary school

In general, roughly 95% of respondents used Information and Communications Technology (ICT) applications before the pandemic. Out of the teachers surveyed, 20% responded that they *rarely* used technologies under normal conditions.
circumstances and 33% stated that they used them sometimes. Prior to the crisis, ICT was often used by 31% of respondents and always by 12% of respondents. Meanwhile, 5% of respondents never used ICT applications before the pandemic crisis. A statistically significant difference in ICT usage existed between primary and secondary school teachers ($\chi^2 (4, 473) = 15.889, p = .003$).

Roughly 99% of respondents used ICT for teaching and learning during the pandemic crisis. Among these teachers, majority of them (63%) indicated that they always used ICT during the COVID-19 crisis. Frequent use of ICT was reported by 26% of teachers and 6% stated that they sometimes used them. Few teachers (4%) reported using ICT rarely during the crisis. Nevertheless, 1% responded that they never used ICT applications during the pandemic crisis. A statistically significant difference in ICT usage during the pandemic crisis existed between primary and secondary school teachers ($\chi^2 (4, 473) = 29.715, p < .001$). The rate of teachers who always used ICT during the crisis is more prominent at the secondary level (71%) than at the primary level (46%).

By comparing answers to questions addressing ICT use before and during the crisis, we observe that a majority of teachers (74.5%) increased the use of ICT applications during this period and some teachers (4%) decreased the use of ICT during the health crisis (Figure 2). The observed changes seem to be identical at both levels of education ($\chi^2 (2, 473) = 3.782, p = .151$).

### 4.7 Pedagogical decisions were not really linked to the technological equipment of teachers

To understand if technology was a factor linked with the choice of teaching practices during confinement— and thereby had an impact on inequalities—we conducted a cross-analysis of the factors technological equipment and pedagogical decisions. Chi-square tests were used to compare pedagogical decisions between teachers with unsuitable equipment, teachers with suitable equipment but who faced difficulties and teachers with suitable equipment. Results show there is no significant difference between the three groups of teachers related to these pedagogical decisions: contacting learners individually ($\chi^2 (2, 473) = 5.936, p = .051$) or collectively ($\chi^2 (2, 473) = 3.322, p = .190$), introduction of distance learning practices ($\chi^2 (2, 473) = 2.168, p = .338$) using videoconferencing ($\chi^2 (2, 399) = 0.029, p = .986$) and practicing differentiation ($\chi^2 (4, 395) = 5.316, p = .256$). The only pedagogical decision with statistically significant difference is related to the use of ITC during confinement ($\chi^2 (8, 473) = 25.090, p = .002$). ITC equipment were used more by teachers who had suitable equipment than it was by teacher who did not.
4.8 | Teachers did not know whether students had access to digital devices

A precondition for any type of online learning activity is that learners have access to a digital device (computer, smartphone, tablet). Many teachers (43%) reported that more than 75% of their learners have a digital device they can use for school. Only 21% of respondents reported that all their learners have a digital device they can use for online teaching and schoolwork. A slightly smaller proportion of teachers (15.5%) reported that between 50% and 75% of learners have a digital device dedicated to schoolwork. Some respondents (4%) indicated that only between 25% and 50% of learners have a digital device they can use for school and 3.5% of respondents reported that less than 25% of learners have access to a digital device dedicated to online teaching. Meanwhile, 13% of teachers indicated that they did not know whether students had access to technology; this was more frequent at the primary level (18.5%) than the secondary level (11%) ($\chi^2 (5, 434) = 28.036, p < .001$).

Only 10% of teacher responses declared that their school did nothing because there was no family in need. Teachers frequently (62%) indicated that their school did not lend digital devices to learners in need even if it was necessary. Only few teachers (20.5%) reported that their school provided a partial support to some families in need. Only some of the teachers (7.5%) reported that their school provided digital devices to almost all families in need. There is a significant difference between responses from secondary and primary teachers; secondary learners received more support from their school ($\chi^2 (3, 439) = 35.563, p < .001$).

The most frequent response among teachers (45%) was that they did not know if students had access to a printer. Not knowing about printer access was more common at the secondary level (52.5%) than at the primary level (27%) ($\chi^2 (1, 473) = 22.142, p < .001$). A large number of respondents (46%) reported that more than 75% of learners had Internet for online learning. Only 19.5% of respondents reported that all learners had an Internet connection. A slightly smaller proportion (13.5%) reported that between 50% and 75% of learners had Internet access. Some respondents (6%) indicated that only between 25% and 50% of learners had an Internet connection and 1.5% of respondents reported that less than 25% of learners had Internet connections. Meanwhile, no less than 13.5% of teachers indicated that they did not have any information related to this. This lack of information at the primary level (14.5%) was more or less the same at the secondary level (13%). Access to Internet seems to have been greater at the secondary level.

No less than 49% of teachers indicated that they did not have any information about the smartphones used by learners. The majority of the respondents (14%) declared that between 25% and 50% of students used the smartphone for online learning. The smartphone was used more by learners at the secondary level than at the primary level ($\chi^2 (5, 432) = 18.922, p = .002$).

No less than 45.5% of teachers indicated that they did not have any information about the computers used by learners. Most of the respondents (14.5%) declared that between 25% and 50% of learners used the computer for online teaching. It seems there is no difference between the two levels of education.

Many teachers (67%) declared that they did not have any information about the tablets used by students. This lack of information was greater at the secondary level (72%) than at the primary level (56%). Most of the respondents (19%) declared that less than 25% of learners used the tablet for the online teaching. Among the different digital devices, the tablet seems to be the one that was used less by learners, but teachers have little information about the extent to which students use this device compared to computer and smartphone use.

4.9 | A high rate of dropout observed by teachers

Teachers who used distance learning practices were asked about attendance, to estimate an overall student dropout rate. Teachers were asked to estimate how many learners continually participated in the distance learning activities organised. No dropout was noted by 10.5% of teachers (everyone or almost everyone learners constantly participated). In contrast, all students dropped out from online teaching for 2% of teachers. According to 36% of
teachers, approximately three quarters of learners constantly participated. Approximately half of the students were reported to participate by 28% of teachers; a quarter of students participated in the online teaching of 23.5% of the teachers. A statistically consistent difference appears between secondary and primary teachers ($\chi^2 (4, 396) = 19.952, p < .001$). Dropout (continuous participation of one half or less of learners) was more commonly noted by secondary teachers (60%) than primary teachers (37%).

For a better analysis of inequalities, results about content taught by teachers (whether new content was used) and dropout of learners were combined. Teachers who did not develop new content were associated with a higher rate of dropout (fewer students participating constantly). Chi-square testing shows a significant difference between results from teachers reporting high dropout and low dropout ($\chi^2 (4, 396) = 14.190, p = .007$). Nevertheless, the survey shows that 35% of teachers with a participation rate of 25% learners had developed new learning.

Most of the teachers, irrespective of dropout rate, proposed to consolidate prior content rather than develop new. However, more than a tenth (11%) of the teachers with no or almost no dropouts chose to develop new content. The teachers with a higher dropout rate were proportionally more represented among teachers who did not introduce new content. A chi-square test shows a significant difference between results from teachers with high and low dropout rate ($\chi^2 (4, 396) = 20.703, p < .001$).

5 | DISCUSSION

In the French speaking Community of Belgium (FWB), face-to-face classes were suspended due to the COVID-19 pandemic. From mid-March to the end of June 2020, teachers were asked to secure pedagogical continuity via distance education. Belgian authorities sought to limit the development of inequalities through regulations and recommendations. Nevertheless, numerous authors agree that the COVID-19 confinement and distance teaching have increased educational inequalities (e.g., Azevedo et al., 2021; Darnon, 2020; Wagnon, 2020) and most teachers seem to agree with this (Duroisin et al., 2021a).

This article reports on analysis that draws on a large-scale survey of primary and secondary school teachers on practices and observations regarding their students during the confinement period. The survey aimed to improve understanding of inequalities between learners during the confinement and to identify some factors which might explain inequalities. On the one hand, teacher specific factors (technological equipment and pedagogical decisions) were developed to highlight inequalities between students by school classes. On the other hand, student specific factors (equipment and dropout) revealed inequalities between learners in the same school classes.

Even before the crisis, the digitalisation of education was a goal articulated by the Belgian authorities. This ambition is highlighted in the large-scale reform Pacte pour un enseignement d’excellence (Central Group, 2017; Duroisin, Monney, et al., 2021) which identified areas of improvement. Nevertheless, there is little information about the technological equipment of teachers in the FWB in Belgium. During the pandemic crisis, technology helped to secure educational continuity (Weppe et al., 2020). Our results show that the access teachers had to technological equipment varied. Many primary and secondary teachers faced difficulties with their digital equipment and some did not have the access they needed. This represents a digital divide on the part of the teachers (see also Duroisin & Beauset, 2021). The divide may be more important as the survey was an online survey in which teachers lacking access to ICT could not participate—which is a limitation of this research. This divide can produce inequalities between different groups of students. Indeed, this unequal situation in teacher ICT access may lead to different pedagogical decisions and different distance teaching methods between school classes. Teachers lack of ICT equipment can lead to reduced teaching practices during periods of confinement. It can impact all learners, especially at the secondary level of education where a teacher has a lot of classes and learners.

Nevertheless, results of this survey show that the central role of this factor must be nuanced. In fact, there is no statistical difference between teachers who did or did not have appropriate ICT equipment (with or without difficulties) in terms of pedagogical decisions such as contacting learners collectively or individually; introducing
distance teaching practices and videoconference sessions, and practicing *differentiation*. Equipment is not the major factor that explains teaching practices during confinement—to provide equipment to teachers as such is not sufficient to manage inequality in distance education.

In addition to the variability of teachers' digital equipment, this survey reveals a disparity of actions implemented by teachers during the confinement, which inevitably leads to inequalities between students in Belgium. These results seem consistent with results of Baudouin et al. (2020) who conducted a survey of students in Belgium.

Despite the authorities' recommendations to maintain social ties, all of them did not try to get in touch with learners to the same extent. Some teachers proposed frequent collective or individual discussions, while others did not or did so to a lesser extent. The introduction of distance learning practices, such as videoconferencing sessions were carried out more by secondary teachers. During confinement, opportunities for learning and maintaining social ties were different between groups of students. These results confirm strong inequalities between school classes because some learners did not receive any opportunities whereas other students did sometimes several times a week.

Pedagogical choices varied—for content and differentiation—among teachers who introduced distance learning practices, despite regulations that sought to mitigate inequalities between school classes and within classes between learners. Results show that several teachers, especially secondary teachers, did not comply with the regulation to only work on previously introduced content. Paradoxically, survey results demonstrate that inequality between students for teachers who introduced new content was mitigated. For this reason, we believe that inequalities were greater at the level of secondary education. However, the majority of teachers preferred to work on consolidating prior learning rather than take on new content. Moreover, cross-analysis reveals that teachers teaching new content during the confinement had fewer students dropping out.

Differentiation practices aim to mitigate inequalities between learners because this practice responds to the needs of each learner (Duroisin, Simon, et al., 2021; Feyfant, 2016). Nevertheless, results from this survey highlight that a majority of teachers used differentiation practices as much, or less, during as before the confinement period. This supports our proposition that educational inequalities increased during the confinement. However, we would have thought that a majority of teachers improved differentiation practices during the confinement because ITC can improve the development of a pedagogical approach including differentiation (Benoit & Sagot, 2008; Béziat, 2000). We also expected that teachers using differentiation practices during the confinement were able to improve the development of a pedagogical approach that integrates this practice with ITC to respond to specific needs of each learner.

The technological equipment of students is crucial for the implementation of distance teaching (Darnon, 2020). Therefore, it is important to have data to assess the situation about the technological equipment available to learners at home. In FWB, only a few data are available and allow us to have some indications about this (e.g., Wiard et al., 2020; Schleicher, 2019). We know that primary school learners mainly use television, tablets, video game consoles and smartphones. At the secondary level of education, learners mainly opt for smartphone, television, laptop and the video game console (Wiard et al., 2020). We also know that digital equipment is used at home by fifteen-year-old students a little more frequently in FWB compared to other OECD countries (Fédération Wallonie-Bruxelles, 2020a). According to information from teachers in this survey, there are disparities in the technological tools used by learners. While teachers affirmed that all learners are not equipped with a printer or an Internet connection allowing them to follow distance learning, the survey results show that the majority of learners have access to at least one of the following digital devices: smartphone, tablet or laptop.

Each of these digital devices has an impact on the working conditions of learners. Indeed, the small screen size of some smartphones can be uncomfortable and might cause reading difficulties for learners (e.g., reading diagrams or concept maps). Moreover, these digital devices do not offer the same potential for teaching and learning. Access to digital tools determines the learner's ability to accomplish the learning activities proposed by the teacher. Differences may occur between learners due to the type of digital device used in the context of distance
learning. In fact, a student using a computer can more easily store the results of his research on the Internet and produce a graph or write an essay rather than a student using a smartphone.

Some schools provided material assistance to students in need (for those who did not have operational digital equipment at home) to enable them to participate in distance learning. This assistance concerned a restricted percentage of schools, whereas, according to the surveyed teachers, the demand was much higher. We observe a significant difference between the support provided by secondary schools compared to the support provided by primary schools. It can be explained by the fact that secondary school students must be equipped with a digital device to take part in most school activities at distance. In primary education, parents are often asked to print out exercises at home. When schools lend ICT equipment to students it must be returned to the school at the end of the confinement. Both teachers and school leadership supported, since the start of the pandemic, local initiatives for this type of support. In line with the 2018 Digital Strategy for Education (Fédération Wallonie-Bruxelles, 2018)—and the September 2020 amendment Digital Strategy: Digital equipment and connectivity (Fédération Wallonie-Bruxelles, 2020b)—several action plans for supporting digital equipment have been adopted in the FWB. These policies fund measures for supporting low socio-economic index schools that have organised an online learning platform. These strategic policies target general, qualifying and specialised upper secondary education—primary schools cannot benefit from these supports.

The FWB provides secondary schools with a budget for acquiring a stock of computers corresponding to at least 5% of their school population; also, the FWB supports parents for students in grades 3–7 to get a computer by either purchasing or by renting from a list pre-established by the school (support of € 75 to purchase, or € 25 per year for three years rent, or € 18,75 for four years rent).

The survey shows that a significant part of teachers did not know whether students had ICT equipment despite this information being crucial to propose appropriate activities. This lack of information might lead to educational inequalities. Knowing about students’ ICT equipment differed between primary and secondary teachers. Indeed, more primary teachers knew if their learners had access to a printer. This difference can be explained through the limited handling capacities of digital devices by the youngest learners. As primary learners are less able to manipulate behavioural interfaces (such as the computer keyboard and mouse) than secondary learners, primary school teachers ask their learners to perform the exercises on paper, which requires knowing if a printer is available at home. In primary education, parents also manage their child’s schooling more, for example by printing homework assignments. Jeynes (2012) has observed that primary teachers mobilise parents more easily than secondary teachers.

Moreover, primary school students may encounter more difficulties in using digital equipment in the context of distance learning than secondary students. If some learners know how to use digital tools for leisure activities (social networking, chatting with friends, etc.), not all young people are digitally savvy (Beckman et al., 2018) and they do not necessarily know how to use digital equipment for learning.

During the confinement, some teachers did not propose distance learning activities while others implemented them with low rates of learner attendance. Teachers observed more student dropouts in secondary than in primary school. These differences can be explained by the active role that parents play in managing primary education, whereas secondary learners are expected to manage their own schooling. Several factors may explain the high dropout rate, including teachers not knowing about students’ access to equipment, difficulties working independently, the ban on new content which can lead to boredom and decreased motivation due to reduced social ties between learners and teachers during confinement.

As an issue, equality of access has not been understood as severely in need of attention as are the issues of equality of opportunity or equality of outcomes (Dupriez & Vandenberghe, 2004). However, results from our large-scale survey show that the health crisis highlights the issue of equality of access. During confinement, many students no longer had access to distance education because of a lack of digital equipment, or because some teachers did not offer any lessons during this period.
At the beginning of the 2020–2021 school year, teachers faced more heterogeneous classes than the previous year. Varied student experiences during the confinement contribute to this heterogeneity. During the confinement, all students did not receive the same education because some teachers have encouraged the consolidation of prior content while others preferred to work on new content and some learners have not received instruction because teachers did not offer any activities or because the learners dropped out. All of these results are consistent with those of a survey of French-speaking Belgian parents during the confinement (Gauthier, 2020). School closures have probably increased inequality between and within the school classes and constitutes a challenge for the teachers and policy makers. One of the major challenges is to have mixed classes where learners in the first year of secondary come from many primary schools. This challenge can be overcome with differentiation practices. In addition, the Belgian authorities have put in place several measures to balance inequalities such as the granting of personalised learning periods to help teachers (Circular 7725).

There are different limitations to this research. Firstly, this large-scale study is based on a convenience and restricted sample and this kind of sample is not always representative and we can for this reason not make generalisations based of these results. Moreover, in this research, all information about the learners is based on statements from teachers. It might be interesting to compare with results from a survey of student statements and to link these results with this survey to enrich analyses. For example, the learning environment at home and social contacts with peers could be considered in a student survey.

Other limitations concern analyses of differences between primary and secondary education. In Belgium, the age difference in primary education, and also in secondary education, is six years. This is a considerable age difference between learners in different grades. Comparing primary and secondary teachers is interesting for a broad situational analysis, but a differentiation by age groups when collecting and analysing data (specifically on the role of technical equipment of families as well as the teachers) could be relevant.

Furthermore, the content of the survey is also debatable. Only closed questions were analysed which restricts the factors explored (digital equipment, some teaching practices, etc.) for explaining inequalities between learners. Many questions were cross analysed; yet, different approaches for interpreting the results are possible. Accordingly, it is difficult to identify with certainty the primary factors of educational inequality. However, the analysis presented highlights links between answers and allows to suggest the proportional impact of different factors. It should be noted that when contingency tables show correlations between two factors, it is not possible to say with any degree of certitude which of the two factors influences the other one. For example, it is not clear whether teachers used new content because they had a high participation rate or vice versa. To identify accurate causalities, we would need to change some survey questions. To assess if the participation rate induced the teaching of new learning materials, we would have to ask teachers: Did you teach new content because you had a high participation rate? As a reminder, the aim of this survey was to make a first and broad situational analysis of the situation in FWB by exploring teacher statements. To complete the results of the first survey, other studies or surveys were conducted or are planned for specific subjects (Duroisin, 2020 on higher education; Duroisin et al., 2022 on differentiation and evaluation practices). Indeed, if the results of the study proposed in this article contain some interesting clues for explaining educational inequalities, an in-depth examination with other surveys could allow a better understanding of the educational inequalities in FWB during the COVID-19 crisis. A second survey of teachers—about the organisation of the start of the new school year, digital tools, school learning and assessments, class management, well-being, stress, and school inequalities at the start of the 2020–2021 school year—was conducted between the end of September and the beginning of November 2020. A third survey of teachers has been carried out in 2021, on teaching practices in pandemic times, for providing further answers about educational inequalities.

**DATA AVAILABILITY STATEMENT**
The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.
ENDNOTES

1 The Wallonia-Brussels Federation designates the French Community referred to in Article 2 in the Constitution of Belgium. By a resolution of 25 May 2011, the Parliament of the French Community decided to systematically use the name Fédération Wallonie-Bruxelles or to designate the French Community in its communications. The Government is doing the same. In the teaching circulars, we find the term Federation Wallonia-Brussels.

2 A key reference for the mission of schools in the French speaking Community of Belgium.

3 Questions regarding content taught and practices of differentiation were only addressed with teachers who said they took actions during the confinement; a sample of 399 subjects.

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