



## ARTICLE

### Long-term consequences of COVID-19 on students' well-being and values

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## Long-term consequences of COVID-19 on students' well-being and values

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### Abstract

Due to COVID-19, 2020 and 2021 were strange and different school years for many students around the world. Based on surveys of Danish primary and lower secondary school students conducted in April 2020 (N=5953), June 2020 (N=1187), December 2020 (N=2665) and June 2021 (5768), this article examines students' well-being during COVID-19 in a long-term perspective. Furthermore, the article investigates what, a year after the first national outbreak, emerges in their consciousness when they are asked to think about the way the coronavirus has affected their lives. Based on this, the article discusses how the COVID-19 pandemic may change students' values in a long-term perspective. The article finds that the well-being of the primary and secondary school students in the study samples was favourable. All three dimensions of their well-being were good or very good. However, there was a decline in both emotional and academic well-being, while only social well-being had improved from the first to later data collections. Furthermore, the article points to a number of existential or value aspects that have been under attack.

**Keywords:** COVID-19, primary school, well-being, values, variance analysis, content analysis, Nordic model of education

## **Introduction**

For many students around the world, 2020 and 2021 were different and strange school years characterised by significant unpredictability as well as a series of often unprepared shifts with major and varying kinds of physical and social restrictions. In Denmark, parents were required to keep their children home from 16 March 2020, and all school activities had to be conducted remotely. After five weeks of closure, the schools undertook a controlled reopening for the youngest students (year groups 0–5) – with older students (year groups 6–10) following four weeks later – in settings that met specific criteria for physical and social restrictions consistent with official health and hygiene guidelines. The summer and autumn were characterised by great uncertainty with many shorter and longer local school closures due to fluctuating infection rates, until all schools had to close again at the end of the year. The second reopening took place for the youngest students (year groups 0-4) on 8 February, while the oldest students were back every second week from 15 March (graduating students) or 6 April (year groups 5-8). On 18 May, all students were back full time until they all went on six weeks of summer holiday five weeks later. Thus, for almost a year and a half, students' everyday lives were characterised by a series of changes for which they were often unprepared. Furthermore, their everyday lives were dominated by major and varying kinds of physical and social restrictions.

Teachers, school leaders and politicians in Denmark have expressed great concern about the consequences of COVID-19 on students' well-being and development in both a short- and long-term perspective (Wistoft et al., 2020). Such concerns are found in other countries as well. DeArmond, Chu and Gundapaneni (2021) reviewed public information available online in a representative sample of school districts in the United States and find that most districts (66%) mention students' socioemotional learning and well-being as something they are worried about and need to take care of. Concluding on interviews with representatives of state agencies, Gill et al. (2020) highlight that "many respondents were concerned that social isolation, excessive screen time, and irregular schedules would present a major challenge for pupils in readjusting to school in the fall" (p.19). The Annie E. Casey Foundation (2020) stated that "Undoubtedly, because of the COVID-19 pandemic, the world will remember 2020 as a year of fear, pain and loss for everyone" (p.1).

The relevance of such concerns is confirmed by research on previous temporary school closures due to pandemics (e.g. H1N1), societal crises (e.g. 9/11) or environmental hazards due to earthquakes and the like, which suggests that such situations may compromise students' well-being and may affect their development (Stuart et al., 2013; Chitiyo, Chitiyo and Chitiyo, 2016; Azevedo et al., 2020). Brooks et al. (2020) carried out a literature review of the psychological impact of quarantine and concluded that "Most reviewed studies reported negative psychological effects including post-traumatic stress symptoms, confusion, and anger" (p.912). Stressors here were longer quarantine duration, infection fears, frustration, boredom, inadequate supplies, inadequate information, financial loss, and stigma (ibid.). Kutza and Cornell (2021) are afraid that the sudden loss of control and unanswered questions about the future may leave many feeling helpless, fearful, angry or grieving. Hyun-Sook (2021) worries that the huge impact that COVID-19 has had on every facet of life means that the world becomes a

place of doubt and uncertainty as people struggle to cope with the changes coming in the wake of COVID-19.

In addition, a number of studies have recognised the importance of focusing on the students' connectedness to school and the quality of their relationships with both adults and peers in school as the connectedness and quality of relationships are 'critical to learning and thriving in life' (Aspen Institute, 2020), or on how to keep pupils academically engaged (Clancy and Sentance, 2020).

Besides compromising well-being and the connectedness to school, a number of studies wonder how the situation will change students' values and priorities in the long-term. Although such long-term perspectives are anecdotal evidence at the time of writing, it is important to keep focus on these in order to alleviate existential sufferings in both the individual and the education system in a broader sense. Krumsvik (2020) suggests that the "severe societal crisis as a consequence of the coronavirus has had an extreme existential impact, the likes of which we never have seen before" (ibid., p.71), and he continues by suggesting that the "Nordic countries (as well as others) are confronted with the fact that some of the fundamentals of existence are 'under attack'" (ibid., p.71). Braund (2021) describes the pandemic as a 'wicked problem' defined by high complexity, uncertainty and contested social values. Related to this focus on existential questions and values, there are a number of studies that specifically focus on how the media coverage of the corona situation has challenged traditional Nordic core values. Trevors and Duffy (2020) show how media coverage has reflected negative emotional reactions and polarisation. They find that specifically people with strong moral concerns for individual well-being were more likely to update their pre-covid beliefs when corrected. Conversely, others who morally valued either group cohesion or individual freedoms were more likely to affectively or cognitively reject corrective information (pp.540-541). Also Gadarian et al. (2020) focus on polarisation and find that, in the United States, partisan differences increased early in the COVID-19 crisis. Daly and Robinson (2020) link an increasing polarisation to the rise of anti-vaccination misinformation (e.g. misleading healthcare information and conspiracy theories).

As shown in Qvortrup et al. (2021), the majority of the studies that have systematically investigated the students' health and well-being during the COVID-19 pandemic have been characterised by a disease-oriented perception of health, in which health and well-being are defined as the absence of illness, construed in terms of the absence of either COVID-19 (Office for Civil Rights, 2020; Bender, 2020) or mental health disorders such as anxiety (Gross, 2020). Wang, Zhang et al. (2020) deal with the question of how to motivate children for a healthy lifestyle during school closures by increasing physical activity and aiming at a balanced diet, regular sleep pattern and good personal hygiene. However, some studies take broader perspectives on well-being, and a recurring pattern in these studies is that a decline in well-being is identified during school closures (Lepp, Aaviku, et al., 2021; Mantovani, Bove et al., 2021). Specifically in a Danish context, Wistoft et al. (2020a, 2020b) show that both the mental and the social well-being of the students in Denmark were severely challenged during the first school closures in March, while Qvortrup et al. (2020a) show how the students were also challenged in regard to their perceived coping with the situation. However, to date, not many studies have examined the implications of COVID-19 on students' well-being and development in a long-term perspective.

As noted by Krumsvik (2020), it is important to investigate different aspects of the educational consequences of the COVID-19 pandemic and the impact on students' lives. Thus, this article investigates the implications of the COVID-19 pandemic and the school closures and re-openings on students' well-being in a longitudinal perspective from the first phase of closure until the second phase of re-opening more than a year after the first outbreak of COVID-19. Furthermore, the article investigates what, a year after the first national outbreak, emerges in the students' consciousness when they are asked to think about the worst and the best of the COVID-19 situation. Based on this, the article discusses how the COVID-19 pandemic may change students' values in a long-term perspective. The article's research question is:

*How do students' well-being change through a year and a half of repeated school closures and re-openings due to COVID-19, and what indications of a long-term change of values may be found in students' identification of the worst and the best things about the situation a year after the first national outbreak?*

Theoretically, the article is based on a model examining changes in students' well-being in a school context described in Qvortrup et al. (2021). This model differentiates between three dimensions of well-being: emotional, social and academic well-being. These three dimensions of well-being have for years been and still are associated with the Nordic model of education, and this model's three value fields: caring, democracy and competence (Einarsdóttir, Purola et al., 2015). Thus, besides contributing knowledge about the negative impact of COVID-19 on students' well-being that schools (and society) will have to deal with in the time to come, the article helps to understand whether COVID-19 risks challenging the fundamental values of the school. The long-term consequences are still too uncertain to make any definitive conclusions, but through the designation of changes in students' well-being and through the systematic examination of students' experience of the situation, the article contributes knowledge that may be important to understanding and supporting today's students' further journey in school and life.

Empirically, the article is based on data gathered on students' well-being from four student surveys conducted in the Danish 'Folkeskole' (primary and lower secondary school) in April 2020 (N=5953), June 2020 (N=1187), December 2020 (N=2665) and June 2021 (N=5768). It uses factor analysis to construe indexes on three dimensions of well-being (emotional, social and academic well-being). Furthermore, it uses students' answers to the open question 'What is the worst thing and the best thing about the situation surrounding the coronavirus pandemic' from the December 2020 survey.

### **Theoretical framework: three dimensions of well-being**

The article uses a well-being model where well-being is a multifaceted concept consisting of three dimensions of well-being: emotional well-being, social well-being and academic well-being (Qvortrup et al., 2021). The model is based on previous studies which point to a tendency to use a concept of well-being that is too narrow to understand well-being in an educational context (Aspelin, 2019; Schapira and Aram, 2020). As argued by Shah and Marks: "Well-being is more than just happiness. As well as feeling satisfied and happy, well-being means developing as a person, being fulfilled, and making a

contribution to the community” (2004, p.2). Aspelin (2019) suggests that well-being refers to relational actions and attitudes in ongoing communicative processes, while Schapira and Aram (2020) divide the concept of well-being into an emotional part, which consists of children’s emotions, understanding and empathy, and a social part, which consists of the effectiveness of an individual’s social interactions across a variety of contexts. When it comes to contexts in school, Qvortrup et al. (2021), referring to Hochschild’s (1990) concept of ‘emotion work’ in which individuals manage emotions related to their professional role, suggest distinguishing between social contexts and more academic contexts of schools and classrooms.

In the model, the three dimensions of well-being are connected as corners of a triangle to illustrate the dimensions’ interaction with and influence on each other. The advantage of keeping the three dimensions separated but connected in a triangle is illustrated in regression analyses on the data. These analyses show that on the one hand the three dimensions are significantly related to each other. However, on the other hand the correlations are of different strength, just as the dimensions vary in terms of how they correlate to other variables (Qvortrup et al., 2021). This indicates that they are interacting, but that there is reason to keep them analytically distinct.

In addition to distinguishing between the three forms of well-being, the model illustrates that students’ perceived coping (defined as the feeling of being able to master concrete situations) and their self-efficacy (defined as a broader belief in their abilities in relation to the level and requirements of schooling and specific subjects) are known as factors that affect students’ well-being in an educational context. A stand-alone situation challenging the students’ ability to cope is likely to have little impact on their well-being, but repeated experiences of lack of coping over a period of time will do so (Qvortrup et al., 2021). This is illustrated by doubling the triangle with the three forms of well-being in order to add a timeliness to the model and by linking perceived coping and self-efficacy with dotted lines connecting the two versions of the triangle.

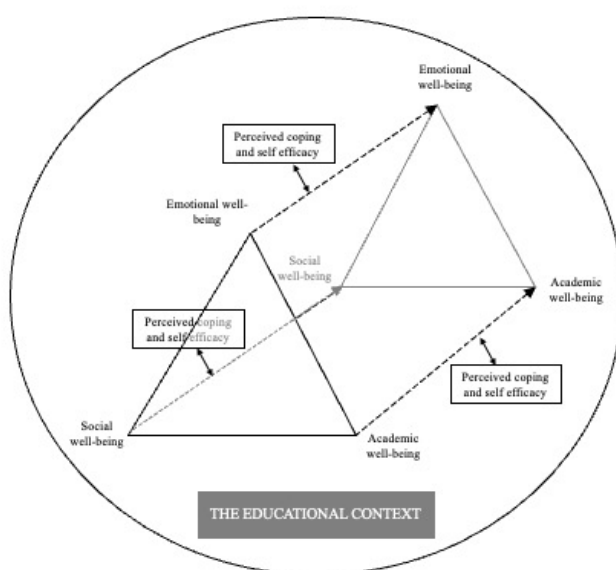


Figure 1: Emotional, social and academic well-being as three well-being dimensions and the relation to perceived coping and self-efficacy in an educational context (Qvortrup et al., 2021)

In this way, it is a process-oriented approach to well-being, an approach that dispels the idea that well-being takes the form of an abstract goal, which is also suggested by Tiberius (2008, 2018), Klausen (2018) and Engelsen (2018), and which agrees well with this article's interest in changes in students' well-being in a long-term perspective. The model is shown in Figure 1.

Consistent with Qvortrup et al. (2021), in this article, emotional well-being is defined as a cluster of symptoms, incorporating feelings of joy, satisfaction, happiness and absence of fear and worry, feelings of energy, courage, vigour and joy. Social well-being is defined as the ability to adapt (i.e. lability and flexibility) and responding appropriately to various situations, including the capacity to control one's emotions in order to engage effectively with one's environment, but also to positive relations with others, autonomy and environmental mastery. Academic well-being refers to students' mindsets and attitudes to their learning environments (meaning, engagement) and students' experience of having agency, a voice etc.

## Method

The article draws on data from two research projects, 'A window of change: transformations of playful learning environments in kindergarten and primary school during and after COVID-19' (Qvortrup et al., 2020b,c,d) and 'COVID-19, Building Back Better' (Qvortrup et. al., 2021). In the projects, qualitative data (interviews and observations) and quantitative data (surveys) are collected over three years (April 2020 to August 2022). The analyses in this article are based on data from surveys to students in year group 3 to 9 conducted in April 2020 (N=5953), June 2020 (N=1187), December 2020 (N=2665) and June 2021 (N=5768). The distribution by gender and year group can be found in Tables 1 and 2, respectively.

Table 1: Distribution by gender

Data set	Girls	Boys	Other
April 2020	53%	47%	0%
June 2020	51%	49%	0%
December 2020	51%	48%	1%
June 2021	50%	49%	1%

Table 2: Distribution by year group

Data set	Year group 3	Year group 4	Year group 5	Year group 6	Year group 7	Year group 8	Year group 9
April 2020	16%	15%	15%	15%	15%	15%	11%
June 2020	14%	16%	18%	13%	22%	16%	2%
December 2020	11%	11%	10%	16%	19%	19%	14%
June 2021	18%	18%	19%	15%	15%	13%	2%

The students responded to the first survey from home and to the other surveys in their schools during class time. The aim of the surveys was to determine how the risk of disease, great unpredictability in everyday life, a series of often unannounced changes and extensive physical and social restrictions negatively and positively affected students' emotional, social and academic well-being as well as their development over the short and the long term. The survey also explored how learning environments were organised to comply with the physical and social restrictions. In this article, I draw on questions that address the three dimensions of well-being described in the theory section. Furthermore, I draw on students' answers to the open-ended question 'What is the worst thing and the best thing about the situation surrounding the coronavirus pandemic?' from the December data collection.

### **Quantitative analysis**

Factor analysis was used in each data set to identify the various well-being dimensions defined by the theoretical framework (see Figure 1). Standardised, weighted factor score variables for the three dimensions were constructed by conducting exploratory factor analyses (EFA). The factor extraction method was iterated principal factor analysis and a combination of parallel analysis with 1,000 iterations (Matsunaga, 2010), and a scree test was used to prevent over and under extraction of factors (O'Brien et al., 2017) while preserving theoretical sensitivity. In all four data sets, the EFA identified three factors which satisfactorily corresponded to the theoretically specified dimensions; however, with certain differences in relation to the number and character of items (see Appendix 1). It is important to keep these differences in mind when interpreting the differences in well-being across different data collections.

I chose to omit the factor of emotional well-being from the first data collection (April 2020) in the cross-data analysis. The reason for this was that this factor contained markedly different items than the factors for emotional well-being in the other three data sets. This could possibly be explained by the fact that this data set was the only one based on data collected while the schools were fully closed and the students were sitting at home, which may mean that there were completely different emotions at stake. But in order not to make misleading comparisons, I decided to omit it. The reliability of the factors was examined by estimating Raykov's factor reliability coefficient ( $r$ ) (Raykov, 1997). All factors had an internal reliability coefficient over 0.7.

Variance analysis (ANOVA) was used to identify any statistically significant differences in the three different well-being dimensions across time (the different data sets), gender and year group.

### **Qualitative analysis**

To gain insight into the way the COVID-19 pandemic has affected existential and value aspects of students' lives, I used content analyses to organize the students' responses to the open-ended question: 'What is the worst thing and the best thing about the situation surrounding the coronavirus pandemic?'. Content analysis is an inductive process that focuses on inspecting categories and themes in data (Zhang and Wildemuth, 2009). The student's responses were read and coded systematically, and recurrent categories and themes were identified. Some responses belonged to several categories and themes and were then registered in all these. Accordingly, the number of coded instantiations



exceeds the number of responses. The NVivo 12 software program was used to process the data efficiently and accurately (Bazeley, 2007). Trustworthiness was addressed by providing thick descriptions, that is, comprehensive descriptions of each category and theme, and by making sure to exemplify the breadth of all categories and themes with a variety of student responses. The aim is to ensure transparency and assist the reader to judge the trustworthiness and transferability of the findings (Ary et al., 2009).

## Results

### Emotional well-being

The analysis of variance shows that there are statistically significant differences in the average emotional well-being between the three data collection times (the data set for April 2020 was omitted),  $F(9014, 2) = 357.47.00$ ,  $p = .000$ ,  $\omega_p^2 = .07$ . The time of data collection explains 7% of the variance in the average emotional well-being. Multiple comparisons with Bonferroni adjustments show that the average emotional well-being at the data collection time in December 2020 ( $M = 2.29$ ,  $SD = 0.52$ ) and June 2021 ( $M = 2.96$ ,  $SD = 0.72$ ) are significantly lower than at the data collection time in June 2020 ( $M = 3.37$ ,  $SD = 0.54$ ) ( $p < .05$ ).

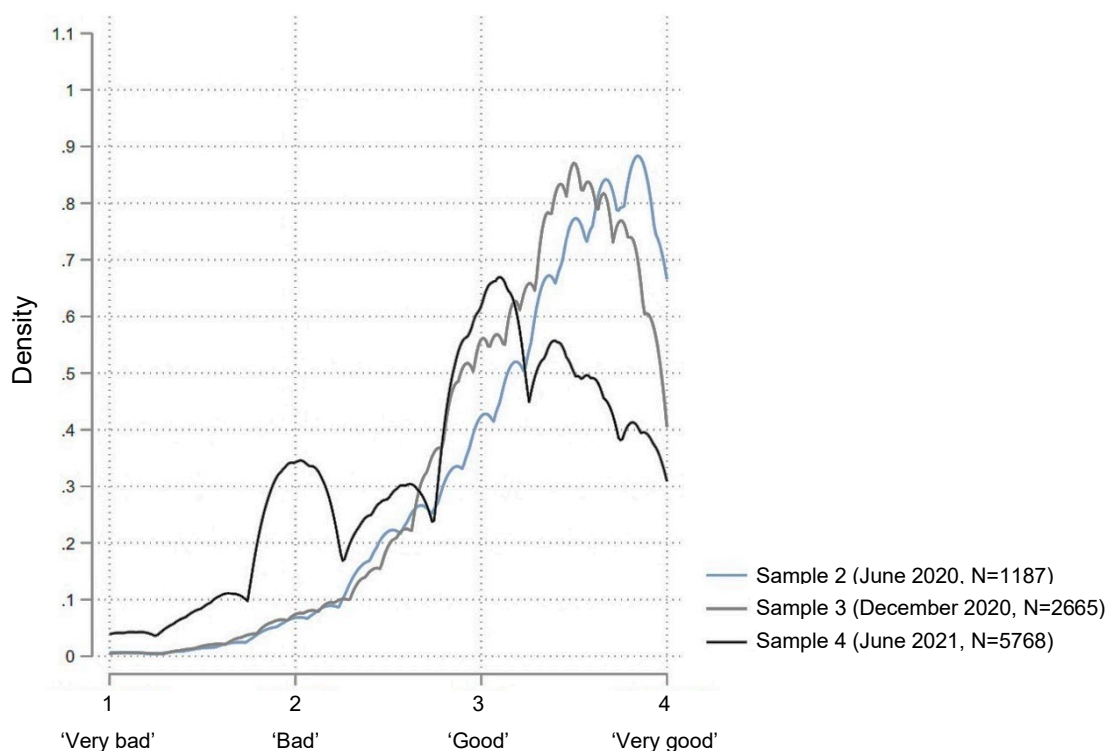


Figure 2: Summated scales for emotional well-being

As figure 2 shows, the number of students whose emotional wellbeing is very good decreases across the three data collections. In the third data collection, the density is highest at good. Modus, the value that occurs most frequently, was 3.8 (number of observations, obs. = 175) in June 2020, 3.5 (obs. = 374) in December 2020, and 3 (obs. = 1024) in June 2021.

The analysis of variance furthermore found statistically significant differences in emotional well-being across different year groups,  $F(9014) = 12.96$ ,  $p = .000$ ,  $\omega_p^2 = .01$ , and between girls and boys,  $F(9014, 2) = 11.63$ ,  $p = .001$ ,  $\omega_p^2 = .001$ , with girls scoring lower than boys ( $p < .001$ ). Multiple comparisons with Bonferroni adjustments show that the average emotional well-being among students in year group 4-9 was statistically significantly lower than the emotional well-being among students in year group 3 ( $p < .001$ ). However, both year group and gender explained  $<1\%$  of the variance in emotional well-being.

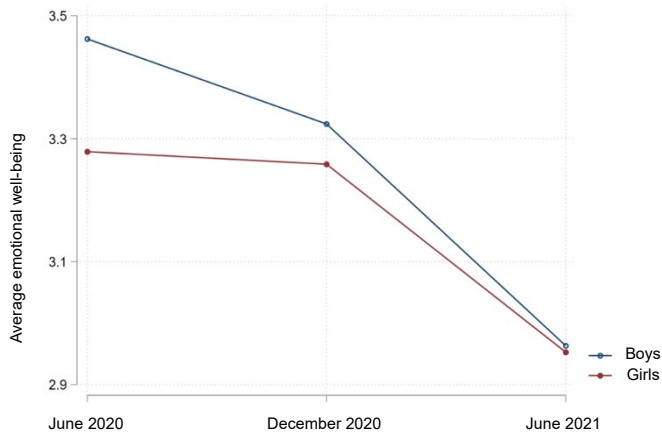


Figure 3: Gender differences in emotional well-being

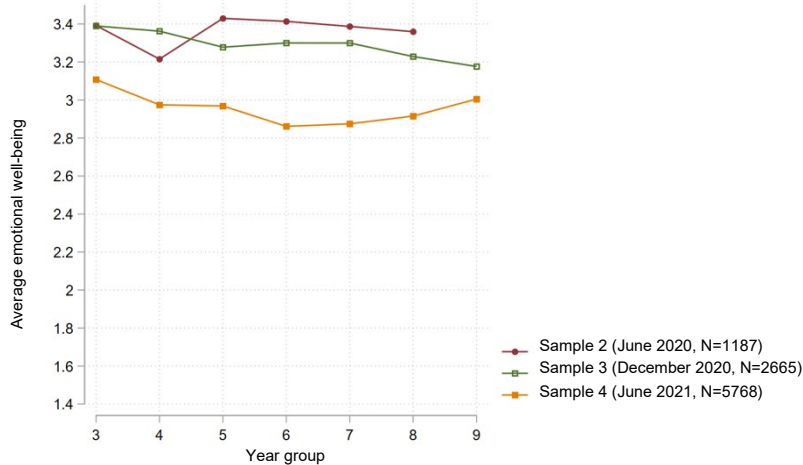


Figure 4: Differences in emotional well-being across year groups

In June 2020, the average emotional well-being among students from year group 3 was 3.39 ( $SD = 0.47$ ), it was 3.21 ( $SD = 0.56$ ) for students in year group 4, 3.43 ( $SD = 0.56$ ) for students in year group 5, 3.41 ( $SD = 0.50$ ) for students in year group 6, 3.39 ( $SD = 0.54$ ) for students in year group 7 and 3.36 ( $SD = 0.70$ ) for students in year group 8.

In December 2020, the average emotional well-being score for students in year group 3 was 3.39 ( $SD = 0.46$ ), it was 3.36 ( $SD = 0.45$ ) for students in year group 4, 3.28 ( $SD = 0.49$ ) for students in year group 5, 3.30 ( $SD = 0.52$ ) for students in year group 6, 3.30 ( $SD = 0.49$ ) for students in year group 7, 3.23 ( $SD = 0.57$ ) for students in year group 8 and 3.17 ( $SD = 0.57$ ) for students in year group 9.

In June 2021, the average emotional well-being score for students in year group 3 was 3.10 ( $SD = 0.71$ ), 2.98 ( $SD = 0.73$ ) for students in year group 4, 2.97 ( $SD = 0.71$ ) for students in year group 5, 2.86 ( $SD = 0.70$ ) for students in year group 6, 2.88 ( $SD = 0.72$ ) for students in year group 7, 2.92 ( $SD = 0.69$ ) for students in year group 8, and 3.01 ( $SD = 0.72$ ) for students in year group 9.

### Social well-being

The analysis of variance shows that there are statically significant differences in the average social well-being between the four data collection times,  $F(14475, 3) = 87.77, p = .000, \omega_p^2 = .02$ . The time of data collection explains 2% of the variance in average social well-being. Multiple comparisons with Bonferroni adjustments show that the average social well-being at the data collection time in April was worst ( $M = 3.11, SD = 0.77$ ), it was a little better in June ( $M = 3.21, SD = 0.55$ ) and best in December ( $M = 3.35, SD = 0.54$ ). In June 2021, it had worsened again.

As shown in figure 5, most students are good in social wellbeing in April 2020, between good and very good in June 2020 and December 2020 and again closer to good in June 2021. In both April 2020 and June 2021, the students have been home for a shorter or longer period. In April 2020, the modus of social well-being was 3 (obs. = 1363), in June 2020 it was 3.43 (obs. = 123), in December 2020 it was 4 (obs. = 401) and in June 2021 it was 3 (obs. = 924).

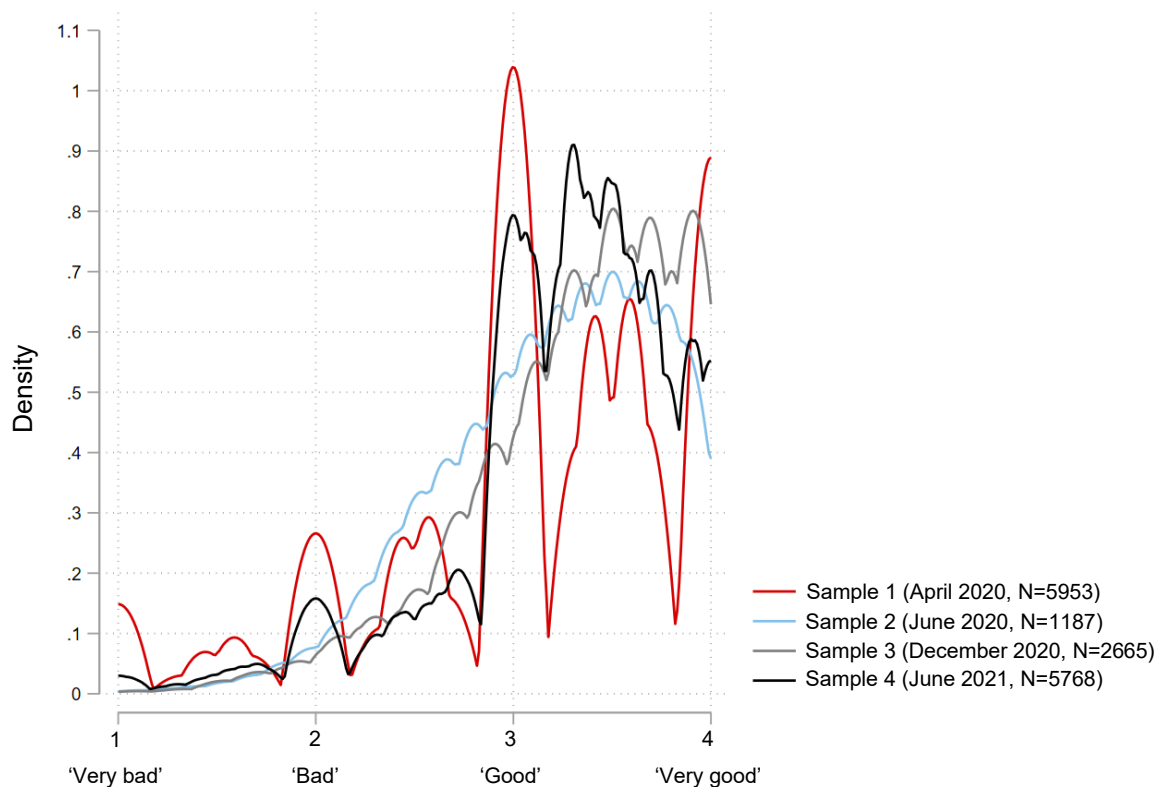


Figure 5: Summated scales for social well-being

The analysis of variance did not find statistically significant differences in social well-being across year groups, but average social well-being was statistically significant higher for boys than for girls,  $F(14475, 1) = 27.95, p = .001, \omega_p^2 = .001$  ( $p < .001$ ). Gender explained only <1% of the variance.

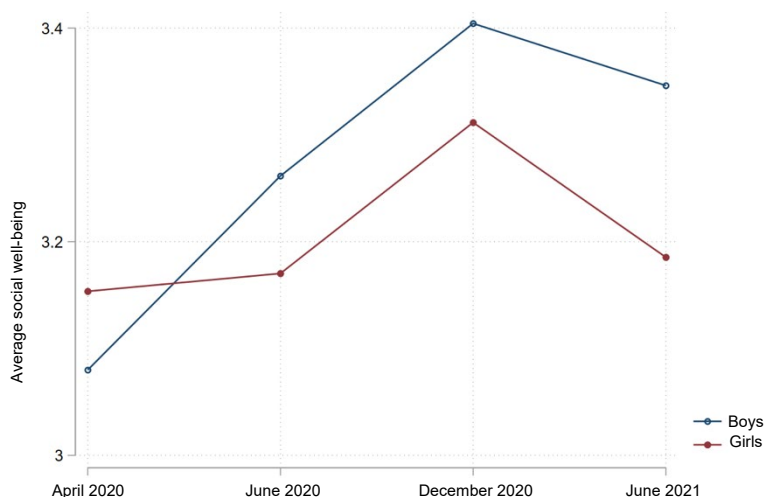


Figure 6: Gender differences in social well-being

In April 2020, the average social well-being for boys was 3.08 ( $SD = 0.79$ ) with modus of 3 (obs.= 617), and for girls it was 3.15 ( $SD = 0.75$ ) with modus of 3 (obs.= 744).

In June 2020, the average social well-being for boys was 3.26 ( $SD = 0.55$ ) with modus of 3.5 (obs.= 62), and for girls it was 3.17 ( $SD = 0.56$ ) with modus of 3.4 (obs.= 61).

In December 2020, the average social well-being for boys was 3.41 ( $SD = 0.52$ ) with modus of 4 (obs.= 224), and for girls it was 3.31 ( $SD = 0.55$ ) with modus of 3.6 (obs.= 219).

In June 2021, the average social well-being for boys was 3.34 ( $SD = 0.53$ ) with modus of 4 (obs.= 398), and for girls it was 3.19 ( $SD = 0.60$ ) with modus of 3 (obs.= 531).

### Academic well-being

An analysis of variance shows that there are statically significant differences in the average academic well-being between the four data collection times,  $F(13863, 3) = 274.58$ ,  $p = .000$ ,  $\omega_p^2 = .06$ . The time of data collection explains 6% of the variance in average academic well-being. Multiple comparisons with Bonferroni adjustments show that the average academic well-being at the data collection time in June 2020 ( $M = 2.55$ ,  $SD = 0.60$ ), December 2020 ( $M = 2.83$ ,  $SD = 0.57$ ) and June 2021 ( $M = 2.62$ ,  $SD = 0.74$ ) is significantly lower than at the data collection time in April ( $M = 3.01$ ,  $SD = 0.72$ ) ( $p < .001$ ).

Academic well-being is best at the first data collection time in April 2020, worse at the data collection time in June 2020, after which it is better again in December 2020 and then has fallen slightly in June 2021. In April 2020, the modus of academic well-being was 3 (obs.= 1150), in June 2020 2.6 (obs.= 184) and in December 2020 3 (obs.= 349). In June 2021, modus was 3 (obs.= 1671).

No statistically significant gender differences were found, but there were significant differences in the academic well-being between year groups,  $F(13863, 6) = 60.18$ ,  $p = .000$ ,  $\omega_p^2 = .03$ . Year group explained 3% of the variance in the average academic well-being. Multiple comparisons with Bonferroni adjustments show that the average academic well-being in year groups 4-9t was statistically significantly lower than the average academic well-being in year group 3 ( $p < .001$ ).

In April 2020, the average academic well-being among students in year group 3 was 3.03 ( $SD = 0.72$ ), it was 3.00 ( $SD = 0.75$ ) for students in year group 4, 3.07 ( $SD = 0.69$ ) for students in year group 5, 3.06 ( $SD = 0.70$ ) for students in year group 6, 3.00 ( $SD = 0.73$ ) for students in year group 7, 2.97 ( $SD = 0.71$ ) for students in year group 8 and 2.93 ( $SD = 0.73$ ) for students in year group 9.

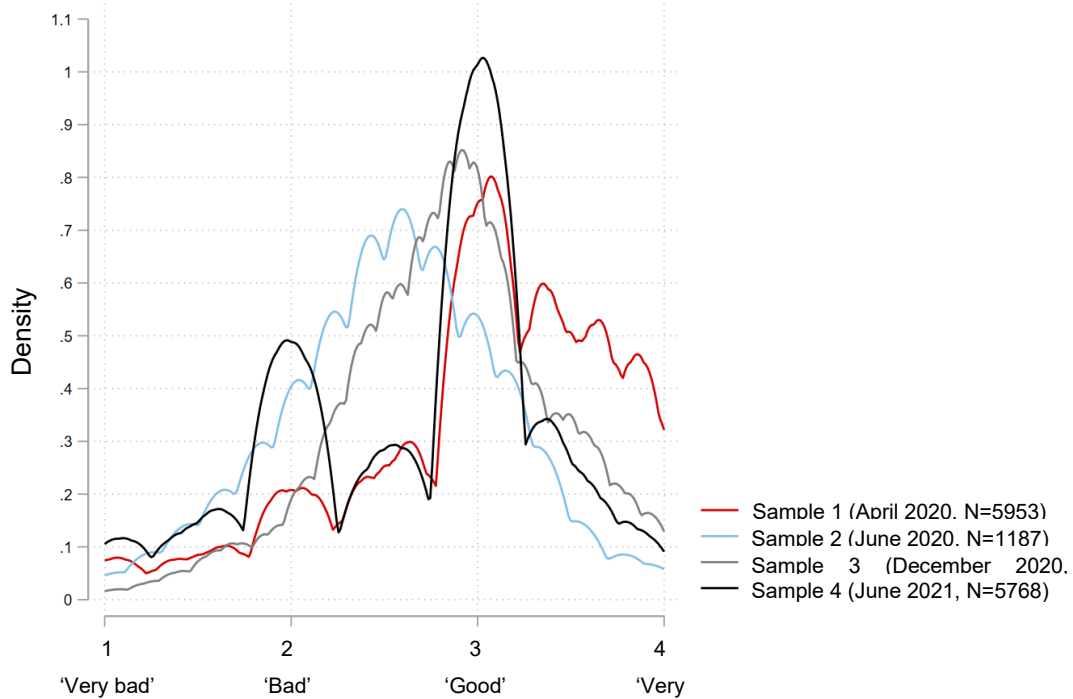


Figure 7: Summated scales for academic well-being

In June 2020, the average academic well-being among students from year group 3 was 2.78 ( $SD = 0.64$ ), it was 2.61 ( $SD = 0.62$ ) for students in year group 4, 2.63 ( $SD = 0.57$ ) for students in year group 5, 2.42 ( $SD = 0.60$ ) for students in year group 6, 2.50 ( $SD = 0.52$ ) for students in year group 7 and 2.37 ( $SD = 0.61$ ) for students in year group 8.

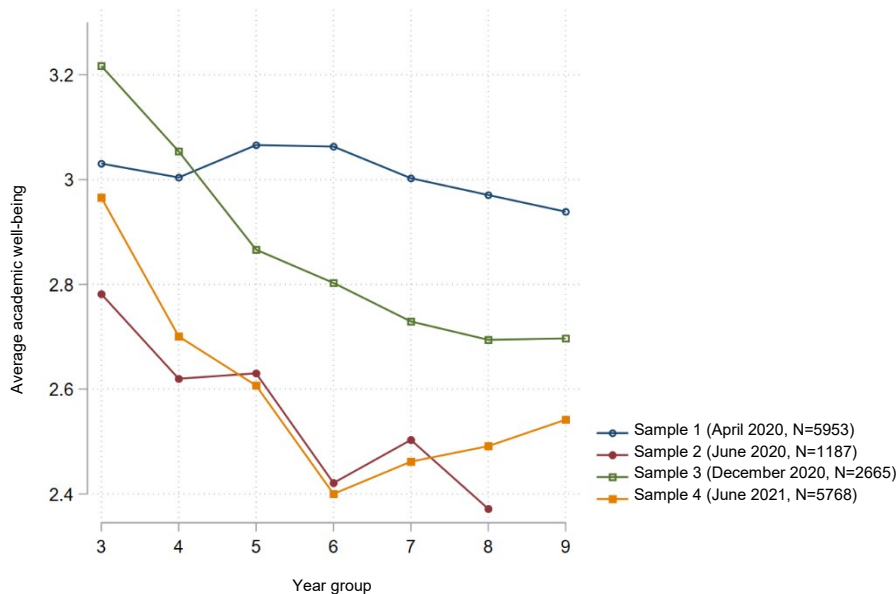


Figure 8: Differences in academic well-being across year groups

In December 2020, the average academic well-being score for students in year group 3 was 3.22 ( $SD = 0.51$ ), it was 3.05 ( $SD = 0.57$ ) for students in year group 4, 2.87 ( $SD = 0.57$ ) for students in year group 5, 2.80 ( $SD = 0.54$ ) for students in year group 6, 2.72 ( $SD = 0.55$ ) for students in year group 7, 2.69 ( $SD = 0.53$ ) for students in year group 8 and 2.70 ( $SD = 0.57$ ) for students in year group 9.

In June 2021, the average academic well-being score for students in year group 3 was 2.95 ( $SD = 0.72$ ), 2.70 ( $SD = 0.76$ ) for students in year group 4, 2.61 ( $SD = 0.72$ ) for students in year group 5, 2.40 ( $SD = 0.71$ ) for students in year group 6, 2.46 ( $SD = 0.70$ ) for students in year group 7, 2.49 ( $SD = 0.69$ ) for students in year group 8 and 2.54 ( $SD = 0.71$ ) for students in year group 9.

### **Impacts on existential and value aspects of students' lives**

As suggested in the introduction, the students' responses to the open question 'What is the worst thing and the best thing about the situation surrounding the coronavirus pandemic?' in December 2020, almost a year after the first case of COVID-19 in Denmark and more than nine months after the first school closure, may give us indications of the impact of the pandemic on existential and value aspects of students' lives

### **Social Restrictions**

The qualitative analysis of the responses identified 2,901 instantiations. By far the most prominent theme identified is a theme about 'social restrictions'. There are 921 mentions of social restrictions, which means that 32% of the instantiations are covered by this theme. Thus, a large proportion of students highlight the social restrictions that have been necessary to minimise the risk of spreading COVID-19 as the one thing that concerns them the most about the pandemic. The theme can be subdivided into 5 categories, the largest of which thematises the lack of opportunity to be with friends, classmates or other people you care about: 'The worst thing is that you may not be much with those you care about' and 'Annoying you can't see your friends', or the consequences that this lack of opportunity to be with friends, classmates or other people you care about entail: 'You miss the company of others' and 'The worst thing is that the community lags when we sit behind our computers'. This category comprises 447 instantiations, which is almost half of the instantiations covered by this theme.

The second largest category covered by the theme of social restrictions comprises descriptions of the loss of closeness and the opportunity to hug or have other forms of physical contact. 229 instantiations belong to this category of 'Loss of closeness' (25% of the theme). Students express themselves in the way that 'The worst thing is that you can't [...] hug, you can't be close to your peers', 'The worst thing is probably that you can't have any physical contact with your friends or those around you' and 'The worst thing about the coronavirus is that you have to keep your distance from your friends, so you can't give any high fives or hugs, you have to give an elbow'. They miss a form of intimacy which – a student points out – was present before COVID-19: 'You can't be together with your friends in the same way that you were when corona was not here'.

The two categories with the third and fourth most instantiations under the theme of social restrictions deal with something not directly school related. The category with the third most instantiations deals with home/family (175, 19%) and is divided into 65 mentions that deal with the experienced longing for

family members such as grandparents, while 110 mentions describe the experienced joy of having more time at home and/or with family. The category with fourth most instantiations deals with lack of leisure activities (57, 6%). The last category covered by this theme includes only 13 instantiations, which is 2% of the total number. It is a category that indicates that the students find it difficult that they are forbidden to exchange or share items at school: 'The worst thing is that we can't borrow things from each other', 'The worst thing is that you can't bum anything from others' packed lunches' and 'The worst thing is that you are not allowed to hand out cake on your birthday'.

### **Limitations**

The theme with second most instantiations (417, 14% of the total number of instantiations) is a theme of 'limitations'. The common denominator is that they are statements about the very imposition of restrictions – and therefore the lack of opportunities and freedom – more than they are about the nature of the rules or about what is limited/restricted. The largest category covered by this theme (202 instantiations, 48%) comprises instantiations that describe having one's freedom and options limited as the worst thing about the coronavirus:

"The worst thing is probably that things are so limited, that you don't have the same opportunities as before"

"The bad thing is that everything is shut down and it has become mega mega mega mega BORING :-("

"It's tiring because you have to hold back and stuff like that"

A smaller part of these thematise something that the students should have experienced, but which has been cancelled, for example:

"The worst thing is that you can't travel. I was supposed to go on many trips to various countries in 2020 but of course have not been able to go. And that applies to Italy, Mallorca and even Lalandia, I could not go"

The second largest category covered by this theme concerns schooling (170 instantiations, 41%). Under this category, the majority of instantiations (167) thematise negative experiences of homeschooling or schooling during the reopening with major restrictions: 'The worst thing is homeschooling' and 'There are also a lot of things we can no longer do. We must not go anywhere and can't be much in our special subject rooms. It makes the teaching super boring and really monotonous'. Adding to these mentions, few instantiations are about how the time of homeschooling has led to new opportunities ('The best thing has probably been the opportunity to explore other teaching methods and get to know what it's like to have virtual teaching for example'), but only 3 instantiations in total mention this. The last category under the theme of limitations is about the great number of rules that have been introduced and about being reprimanded if the rules are not followed: 'The worst thing is probably that rules have been adopted about everything', 'The worst thing is that there are so many rules that are not usually there' and 'The worst is that you are sent to the principal's office if you hug your friends'. There are 48 instantiations in this category.

### ***Fear and consequences***

The third theme identified is a theme about fear and consequences (358 instantiations, 12% of the total number). Under this theme, I identify a category of mentions that express fear of disease (152 instantiations), either a generalised fear of death ('The worst thing about corona is that people die of corona' and 'I think the worst thing about the coronavirus is that people die of it. It's quite heavy that the whole world has been shut down because of it'), a personal fear of getting sick ('I have asthma so I can easily get sick' and 'The worst part is that you are not comfortable being with anyone. You also don't know how to react if you get the virus') or a fear of family members/friends getting sick ('The worst thing is probably that if my mother gets corona, she will probably die of it' and 'My mother has cancer, and if I get symptoms of corona and get sick, my mother may die').

Furthermore, I identify a category of instantiations about the experience of insecurity and affected mood (115 items): 'I HATE CORONA BECAUSE IT COMPLETELY DESTROYS EVERYDAY LIFE' and 'The worst thing about the situation is that you never know what's going to happen tomorrow'. The final category under this theme comprises 91 instantiations about the consequences of COVID-19, which are either general consequences 'The worst thing is all those who are affected, mentally and physically or financially' and 'Parents lose jobs, many people die' and 'It harms our economy because if people are not allowed to go to work, they can't earn money, and it can be a problem at home', personal consequences 'Anxiety attacks, bad', 'You get a little lonely' and 'Mentally, it's quite hard on the brain' or academically related/school-related consequences: 'The worst thing is that we have been at home for far too long, and we have not learned as much as we should have learned' and 'I don't feel we get anything from this homeschooling. It's really hard for me and for my family. I can't get the help I need when we are sitting at home. Homeschooling is also cumbersome because you are never sure what classes you have and when. Corona has ruined 9th school year for me. I hoped to spend a lot of time with my friends. I hoped to learn the book, but I don't feel I have. My marks have dropped because my focus is on corona and how I can avoid infecting others or getting it myself, and because we get almost no help, we don't get enough time to do our things, and we have so much homework that we don't understand'.

### ***Hopelessness***

The fourth theme identified is a theme of hopelessness, which expresses a kind of abandonment in relation to finding something good about the COVID-19 situation (327 items, 11% of the total number of items). Examples of mentions from this theme are:

'I actually don't think there is anything good about corona'

'The best: NOTHING', 'I don't think there is anything good about this situation as it really affects life'

'Everything about corona is generally just annoying. There are no good things'

'There is nothing good about corona. There are MANY bad things about it'.



### ***Physical restrictions***

Theme number five, identified in the students' answers to the question 'What is the worst thing and the best thing about the situation surrounding the coronavirus pandemic?', is a theme of negative experiences with physical restrictions (299 instantiations, 10% of the total number). The first category under this theme (97 instantiations, 32%) deals with hand washing 'The worst thing is probably that my hands are being ruined by hand sanitiser and from washing my hands all the time', the second category (81 instantiations, 27%) is about zoning 'The worst thing about the coronavirus is that you are not allowed to play where you want during breaks' and 'The worst thing about corona is that we are not allowed in the hallways, so we have to go all the way around the school', the third category (77 instantiations, 26%) about face masks 'The worst thing is probably that we have to wear face masks almost everywhere', the fourth category (23 instantiations, 8%) about cleaning 'The worst thing is that we have to clean with alcohol all the time', and the fifth category (21 instantiations, 7%) about time spent outdoors 'The worst thing is that we have to be outside during breaks'.

### ***Positive experiences***

Finally, we have two themes that express more positive experiences than the previous ones. The first of these, consisting of 114 instantiations (4%), brings together mentions expressing some positive experiences brought about by the COVID 19 situation. The positive experiences are increased focus on hygiene (62 mentions, cf. 'The best thing is that we have become better at keeping the school clean', 'The best thing is that people may think more about hygiene in the future' and 'The best thing is that people have finally learned what hand hygiene is :)'), protection of environment (26 mentions, cf. 'The best thing is that it helps nature when we stay home, and it means a lot to me (:', 'I don't want to say that there has been anything good about COVID-19, but maybe that the earth got a break from CO2' and 'The best thing about the coronavirus is probably that the earth gets a "rest", that it has a break from all us humans who destroy it slowly'), new perspectives on the world/life/school (19 mentions, cf. 'We see the world from a different point of view', 'The good thing is that we learned how to deal with the situation of an unknown virus', 'Best: you got to know yourself better (during the quarantine)' and 'I have come to value my school more and more. So, I enjoy being in school most of the time now'), reduced cases of other diseases (8 mentions, cf. 'The best thing about corona is that we have not been sick much because we have maintained hygiene'), reduced crime (1 mention, 'The best thing is probably that pickpocketing is reduced') or improved personal finances (1 mention, 'The best part is that everything is cheaper').

The second theme that expresses more positive experiences than the previous ones is termed 'Despite all the bad things'. This theme comprises 84 instantiations (3% of the total number). This theme has three categories, the largest one (41 mentions) identifying the end of this very bad situation as the positive part: 'The good thing is that it will be good again' and 'Most survived it and that is good'. The second largest category of this theme (30 mentions) is about returning to school after closures ('The best thing is that you can go to school'), and the last and smallest 'despite...' category concerns the COVID-19 vaccine ('Best: that a vaccine is coming soon').

## Discussion

In this article, I examined students' well-being during and after the covid closures based on surveys of primary and lower secondary school student respondents conducted in April 2020, June 2020, December 2020 and June 2021. I also examined which signs of impact on existential and value aspects of students' lives can be found in students' responses to the open question 'What is the worst thing and the best thing about the situation surrounding the coronavirus pandemic?' in December 2020, almost a year after the first case of COVID-19 in Denmark and more than nine months after the first school closure.

First of all, the picture of the well-being of the primary and secondary school students in the study samples is favourable. All three dimensions of their well-being are good or very good. Thus, there is no evidence of any of the violent consequences that a number of studies mentioned in the introduction (Kutza and Cornell, 2021; Hyun-Sook, 2021; Aspen Institute, 2020; Clancy and Sentance, 2020) are worried about. However, it is important that, on the basis of a general picture as drawn in this article, we do not forget that there may be a number of students or specific groups of students for whom the consequences may be significant. As suggested in Qvortrup (2021), this may lead to new forms of vulnerability, which are not (only) rooted in the well-known forms of vulnerability linked to economic aspects, but also to social and emotional aspects, mental health, health behavior and cultural capital. It is well known that in the present time new types of vulnerability are emerging, which include more conditions, which might be rooted within the young person, within the context (family, institution etc.) or within society (Görlich et al., 2019; Ottosen et al., 2018). It is important to continue to follow the changes in students' well-being in the future. As the article shows, well-being varies not just over time, but also between year groups. Without nuanced empirical knowledge, we risk overlooking such variations and drawing hasty conclusions. COVID-19 has led to 'epistemic uncertainty' (Kay and King, 2020: 23), and as accentuated by Krumsvik (2020), it is important to continuously research the educational consequences of the current crisis to avoid the domination of stereotypes, anecdotal evidence and daily narratives.

At the data collection times presented in the article, we do not find large variations between year groups when it comes to emotional well-being, but we see a general decline across all year groups at the latest data collection in June 2021. This may be due to time being an important factor when it comes to the consequences of a crisis like COVID-19? The Stress Framework (TSF), developed by Jack Shonkoff and his colleagues at the Center for the Development of Child, at Harvard University, suggests that a child's encounter with stressors, although initially tolerable, can result in toxic conditions if they occur regularly over an extended period of time (National Scientific Council on the Developing Child, 2007). Furthermore, a number of themes identified in the qualitative analysis can help us understand what may challenge students' emotional well-being in the long run. First of all, we have the two themes about fear of illness on the one hand and hopelessness on the other hand. We must not underestimate that students may have been intimidated by the experience of a worldwide need to shut down entire societies. In addition, I would like to highlight the theme which comprises items that describe students' experience of having their freedom and options limited and the theme about rules and reprimands. Here

we really touch on some core values in the Nordic school and the Nordic societies. Whether this will affect students negatively in the future, due to the period of many restrictions, or more positively, because they become aware of the freedom and possibilities of their normal daily life or because they become more aware of standing strong on these values, is difficult to say at this present point in time.

Regarding social well-being, I show that there is an improvement in the general social well-being over time; however, there was a decline in June 2021. It is further worth noting that the greatest variance in the distribution of observations on the summated scale for social well-being is during the first phase of school closures, which may indicate that there are more diverse experiences of own social well-being among students when they are at home. This may be due to different conditions. First, I assume that the school's online teaching accounted for a large proportion of students' social contact during school closures, and perhaps we find some explanation in the fact that in both Norway and Denmark there were variations, both regarding contact with the teacher and requirements for attendance (Roe, Blikstad-Balas, Klette and Dalland, 2020; DLF, 2020). Second, I assume that social wellbeing of the students has depended on whether they in their home has had access to supportive adults or siblings, who have created a cosy environment for everyday life and/or have been able to help children both with school work and with dealing with, and recovering from, the adverse experiences associated with the societal crisis.

We must not underestimate the possible consequences of the reduced social wellbeing. Social relationships, social communities and social interaction are crucial for school-age children and young people. This is clearly stated in the qualitative interviews, where by far the most prominent theme identified is the one bringing together negative experiences related to social restrictions. However, it is difficult to predict what the consequences will be in the long run. They may be negatively affected, but conversely we may also see a more positive impact in the sense that COVID-19 may have opened the students' eyes to how much social communities and social interaction give them in everyday life? Maybe it is a value that will stand out even more clearly to them after COVID-19? In any case, in the qualitative data there are signs that there has been a prioritisation of communities, which may even point in the direction of increased solidarity: 'The good thing about it is probably that we have come more together in the class as we have not had the opportunity to be with others at school', 'The best thing is that we have come together much more as a class,' and 'What I like about it is that now we take more care of the elderly, and we take care of each other, both of them around us and family, friends, et cetera'.

Finally, academic well-being is best in April 2020 during the shutdown compared to the other three data collection times in June 2020, December 2020 and June 2021. In June 2020 and December 2020, students in the oldest year groups tend to experience poorer academic well-being than students in the younger year groups. Here, too, there is reason to keep in mind the core values of the Nordic school. The roots of lifelong learning are deep in the Nordic countries and lifelong learning is one of the most important foundations of the Nordic model of education (Esping-Andersen, 1989; Gustavsson, 2002). Therefore, it is a little worrying that academic well-being has been declining, especially when combined with the qualitative responses about the negative experiences of homeschooling and schooling during

reopening with major restrictions as well as about the experienced academically related/school-related consequences.

As mentioned in the introduction, besides compromising well-being, a number of studies wonder how the situation will change students' values in a long-term perspective. It is not possible to conclude anything about the long-term perspective based on the data and analysis in this article, but I have already pointed out a number of future points of attention: freedom and choice, social communities and social interaction as well as the desire to learn and the joy of learning. We are dealing with social values as also highlighted by Braund (2021) but also more individual rights and values. These values have been 'under attack' as I quoted Krumsvik in the introduction of the article, but at this time, is not possible to predict whether this will lead to a devaluation or to an accentuation of these values in the future.

In the Danish context, there are no students who thematise the media coverage or vaccine information, which was a theme in Trevors and Duffy (2020), Gadarian et al. (2020) and Daly and Robinson (2020). However, this does not mean that the situation cannot lead to increased polarisation and inequality both at the societal level and in educational contexts.

### **Limitations**

It is important to be aware of a number of limitations of this study. The lack of a systematic sampling design because of harsh data collection conditions and possibilities due to the time sensitivity of the situation of closing and then reopening schools during the COVID-19 pandemic makes it difficult to generalise beyond the analytical sample. Furthermore, the differences in samples and factors used to identify the different well-being dimensions create some uncertainty about the results of the comparisons. It can also be argued that the possibility of inference is also inhibited by the special and futile circumstances related to the whole situation associated with COVID-19 in different countries. Finally, this study is limited in its reliance on self-reported experiences and feelings. However, experiences and feelings are malleable in the sense that they are subject and context dependent, and thus it is important to gain insight into different student experiences in order to understand student reactions and to be able to avert any future mental health disorders.

### **Conclusion**

The article finds that the well-being of primary and secondary school students from Denmark at different times during the period of COVID-19 was favourable. All three dimensions of their well-being were good or very good. However, there was a decline in both emotional and academic well-being, while only social well-being had improved from the first to later data collections. Through the systematic examination of students' experience of the situation, there are a number of existential or value aspects for future points of attention: freedom and choice, social communities and social interaction as well as the desire to learn and the joy of learning. These values have been under attack and whether this will lead to a devaluation or to an accentuation of these values in the future will be relevant to pursue further.

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## Appendix 1

Factor/Data set	April 2020	June 2020	December 2020	June 2021
Emotional		How often have you felt happy?	How often have you felt happy?	I am happy
		How often have you felt satisfied?	How often have you felt sad?	I am in a good mood
		How often have you felt scared?	How often have you been in a good mood?	I am motivated in school
		How often have you felt afraid?	How often have you felt motivated?	I am happy to attend school
		How often have you felt sad?	I am happy to attend school	I like my teachers
		How often have you been in a good mood?	How often are you happy about your teachers?	
Social	'The teachers at my school notice if I do my assignments'	How often have you felt understood?	How often have you felt understood?	I feel understood
	'The teachers at my school are aware of how I feel'	How often have you felt that you fit in?	How often have you felt that you fit in?	I fit in well
	'If there is an assignment that I do not understand, it is easy to get help from a teacher'	How often have you felt you have been treated fairly?	How often have you felt you have been heard?	I get heard in school
		How often have you felt you have been heard?	How often have you felt left out of things?	I have good classmates
		How often have you felt left out of things?	How often have you felt that you have good classmates?	
		How often have you felt misunderstood?		
		How often have you felt very alone?		
Academic	'It is easy to keep up with classes'	What we do in school is boring	What we do in school is boring	What we do in school is boring
	'I have no problem concentrating on the school activities that I have to do during the day'	What we do in school makes me want to learn more	What we do in school makes me want to learn more	What we do in school makes me want to learn more
	'I do well with this kind of teaching'	What we do in school helps me develop ideas	What we do in school helps me develop ideas	What we do in school helps me develop ideas
	'I understand what I work with'	What we do in school is meaningful to me	It's fun to learn something new at school	It's fun to learn something new at school
	'I think I'm doing better than my classmates'	What we do in school does not interest me	I make a strong effort in class.	I like my classes at my school
			I like my classes at my school	