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Accommodating Students With Special Educational Needs During School Closures Due to the COVID-19 Pandemic in Norway: Perceptions of Teachers and Students

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The purpose of the two interrelated studies reported here was to explore the approaches that schools and teachers adopted to accommodate students with special educational needs (SEN) during school closings in Norway, as well as the consequences of the pandemic for children with SEN and their peers. Study 1 was a mixed-methods case study of a lower-secondary school in which students with SEN (n = 14) and students performing at or above grade-level (n = 66) completed a survey about their experiences. Survey results were then used as a starting point for follow-up interviews with four teachers and the school principal to explore how they dealt with pandemic restrictions and supported students with SEN. Study 2 is based on a survey of teachers from 10 schools (n = 128) who were participating in a professional development course on the use of educational technology when pandemic restrictions were enacted. Findings from both studies indicate that teachers and pupils are most concerned about the social and emotional consequences of the pandemic and report that distance learning worked poorly for pupils with SEN. For this reason, many students with SEN were provided with teaching at school while their classmates remained at home. Overall, teachers and students believe that they coped well given the circumstances and that the long-term impact on most students will be minimal. However, findings from both studies point to areas of concern for students with SEN and other pupils who were already struggling prior to the shutdown, citing a failure to meet the needs of these students through digital home-schooling and a loss of the support that students have a legal right to receive.

Keywords: school closure, Corona, COVID-19 pandemic, special needs education, teaching approaches, Norway, perceptions, distance learning

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INTRODUCTION

The Coronavirus disease (COVID-19) reached an international scale in the early days of 2020 and was declared a global pandemic by the World Health Organization on 11 March of that year. As a result, new regulations and guidelines were introduced in Norway with pervasive restrictions to prevent further spread of the virus. Among these restrictions was the closure of schools starting on 12 March and a turn toward online teaching while students remained at home. School closures

were intended to last no more than 2 weeks, but were later extended to mid-April, and some schools remained partially or completely closed until May 2020 (Norwegian Directorate for Education and Training [NDET], 2020). During this period, the educational system faced major challenges and teachers were required to find new means of teaching and monitoring students following the rapid transition to digital home-schooling. Due to the difficulties that they and their families encountered, many pupils with special educational needs (SEN) and students in high-risk groups were allowed to attend school while their classmates remained at home (Norwegian Directorate for Education and Training [NDET], 2020).

Even after restrictions were loosened, life in schools underwent significant changes as new grouping arrangements and more stringent health-protective measures were implemented. In the months that followed, the "traffic light model" was introduced to coordinate school operations and limit access when necessary. Schools situated in areas with high infection rates were classified at the red level, typically resulting in school closure. Schools in areas with medium infection rates were set at yellow level, where students were placed in small groups and rotated between distance learning and school-based instruction. In areas with low infection rates, schools at the green level remained fully open (Caspersen et al., 2021). Given this variation, concerns have been raised about the quality of education provided to many pupils with SEN during this period (Norwegian Directorate for Education and Training [NDET], 2020). To date, there has been limited research on how teachers and students in Norway adapted to the closing of schools and the impact of the pandemic on this vulnerable group of children and youth. Therefore, we conducted two interrelated studies to explore the approaches that schools and teachers adopted to accommodate students with SEN during school closings and the consequences of the pandemic for children with SEN and their peers.

The Norwegian Education Act states that a pupil has a right to special education if he or she does not, or is unable to, receive satisfactory benefit from ordinary tuition (Ministry of Education and Research, 1998, p. 5–1). Approximately 8% of Norway's more than 630,000 compulsory school students (ages 6–16) receive special education (Statistics Norway, 2020). However, this percentage increases from early childhood to lower secondary school, where it exceeds 10% by the final year of compulsory education (grade 10, ages 15–16). By law, special education is organized in the form of "hours of teaching" and the total number of hours provided to students with SEN—in special education or otherwise—is not to exceed the total number of teaching hours allotted to other students. Typically, students with SEN receive a designated number of hours per week with an educational professional to work on specific skill areas or goals. In practice, much of special education is provided by assistants within the general education classroom and the distinction between what is considered special and regular education is often unclear (Cameron, 2016).

In both general and special education, Norwegian teachers have been using digital learning platforms and educational technology for years. In addition, digital literacy is defined as a core competency in the Norwegian curriculum and the majority of schools provide 1:1 access to digital devices in both primary and secondary education (Bocconi et al., 2013; Blikstad-Balas and Davies, 2017). This means that students have individual access to a laptop, notebook, or tablet for a substantial portion of their formal education. However, there are variations as to when technology is introduced. A recent report by Fjørtoft et al. (2019) found that 32% of pupils in 4th grade have 1:1 access, compared to 56% of 7th grade students, and 83% of students in lower secondary school (grades 8–10, ages 13–16). By upper secondary school, 1:1 access has become the norm (Blikstad-Balas and Klette, 2020). Despite these developments, the rapid shift to digital home-schooling during the shutdown was clearly a new challenge for both teachers and students. Indeed, a survey conducted after schools were closed in April 2020, indicates that a majority of Norwegian teachers did not have any prior experience with online teaching (Gudmundsdottir and Hathaway, 2020).

In one of few Norwegian research studies on this topic, Mælan et al. (2021) surveyed 1,755 lower secondary school students on their perceptions of academic achievement during the period with distance learning. Students reported less teacher support during distance learning and low-performing students had significantly lower scores on measures of self-efficacy and work effort when compared to their classmates. The authors suggest that it was likely more demanding for low-performing students to maintain motivation in this context and point to the risk of a widening gap between low and high-performing students due to diverging levels of engagement in school. Grewenig et al. (2021) found similar results in Germany where they surveyed 1,099 parents on their children's use of time before and during school closures. Results showed that low-performing students disproportionately replaced their learning time with activities such as watching television or playing computer games.

Page et al. (2021) investigated challenges for students with SEN with respect to digital teaching approaches implemented as a result of pandemic restrictions in Australia. The study was based on qualitative interviews with teachers on topics such as motivation, routines, and risks to students with SEN. The authors found that the changes were difficult for SEN pupils, who depend on predictability. This led schools to open up again for students who experienced problems with digital learning. Similar to the findings of Mælan et al. (2021), teachers believed that students with SEN were at risk of being excluded from learning due to poor motivation and low school engagement among this group (Page et al., 2021).

In addition to pupils' motivation and engagement, other issues have also been investigated in research on the effects of the Corona pandemic. Berasategi Sancho et al. (2021) distributed a survey to 1,225 parents in Spain, of which 3% (n = 38) had children with SEN. According to parents, these children experienced increases in negative emotions, such as feeling nervous, angry, and sad. Their general wellbeing was lower compared to children without SEN, and they reported lower levels of physical activity, creativity, and play. In the United Kingdom, Asbury et al. (2021) asked 241 parents and caregivers of school-aged children with SEN to describe how COVID-19 affected their own and their children's mental health.

Their results showed that, like their parents, children with SEN experienced loss, worry, and negative changes in both mood and behavior.

RESEARCH QUESTIONS

Despite evidence from studies such as those described above, much remains unknown about the impact of the Corona pandemic on pupils with SEN and how schools in different regions of the world have sought to address the challenges that it has created for this group of students. Therefore, we conducted two interrelated studies to address this deficit. The following overarching questions were developed to guide this research:

1. What educational approaches were used during the period when schools were closed due to the pandemic for students with and without SEN?
2. How did the experiences of students with SEN differ from those of other pupils during this period?
3. How do students and teachers evaluate the quality of support provided and the potential consequences of school closings for students?

The two studies were designed to address all three research questions. With respect to question 1, we examined the use of educational approaches by surveying students in a lower secondary school and then interviewing their teachers about the students' responses (study 1). In study 2, we sent a survey to teachers from 10 different schools about the approaches that they used during the pandemic. Taken together, these two studies provide both an overview and a detailed picture of the approaches used and serve to answer the first research question. While we emphasize the views of students from a single school for questions 2 and 3, interview and survey responses from teachers in the two studies provide insight into how they perceived the quality of support provided to students with SEN, as well as the consequences of the pandemic for these and other pupils.

METHODS

Study 1: Case Study

Study 1 is a mixed-methods case study of a lower secondary school in southern Norway. Data comprises 9th and 10th grade students' responses to a digital survey (n = 80) and interviews with four teachers and the school principal. With respect to size and demographic characteristics, the school is typical for the region, with approximately 150 students and 20–25 teachers, assistants, and administrative staff. At the time of data collection, the school was being used as a comparison school for a pilot study on the use of technology in writing instruction. Participants in this study did not receive the pilot intervention and the school was similar to most Norwegian schools in its response to pandemic-related restrictions, such as school closings and other requirements (e.g., COVID-testing, grouping, and distancing).

Student Participants

As the study was designed to investigate experiences from the previous school year in which 8th grade students were attending different primary schools, only students from grades 9 and 10 participated in the study. At the time of data collection, there were 119 pupils enrolled in these two grade levels, 80 of whom participated in the study. Although consent forms were collected from the parents of 87 students, there were 7 students who were either absent on the day of data collection or chose not to participate despite their parents having provided consent. Students were categorized as having special educational needs (SEN) (n = 14) based on performance at the low-mastery level on national tests in Norwegian, LOGOS assessment for reading difficulties (Høien, 2007), and teacher reports. The remaining students (n = 66) were performing at or above grade-level. The average age was 14 years and 3 months for pupils with SEN and 14 years and 1 month for pupils without SEN. Eight pupils in the SEN group were male (57%), whereas 35 students without SEN (53%) were male.

Student Survey

Students completed surveys in December 2020 using tablet computers during allotted class time. Three researchers visited the school to assist with data collection. A link to the survey was posted on the school's internal network and students' responses were automatically saved to a password-protected database. Students were informed of the broad goal of the study and that participation was voluntary. A script was used to ensure the conformity of information provided to pupils across researchers and classrooms. Approximately 20 min was given for completion of the survey. Students with difficulty reading in Norwegian were given extra time outside of class with a teacher or assistant if necessary. The survey was also accessible as an audio file on the school's internal network so that students could listen to questions as they responded if they chose to do so.

The survey instrument included 25 questions or prompts, and approximately 100 response items. For example, participants were given the question "To what degree were the following approaches used during the period in which schools were closed?" They were then asked to rate the degree to which five different approaches were used. In this case, each approach represents a separate item in the instrument. Roughly half of the questions dealt directly with issues pertaining to the period when schools were closed due to the pandemic or perceptions of the pandemic in general and its consequences. It also contained demographic questions (e.g., age and gender) and questions pertaining to learning engagement and motivation. With few exceptions, participants responded using a 6-point Likert scale (e.g., not at all = 1, to a high degree = 6). The design and content of the questionnaire was based on a brief overview of available research pertaining to the Corona pandemic as well as previously established instruments (Perryman, 2019; Federici and Vika, 2020). The three authors developed the survey in collaboration, with input from professionals with expertise in the use of assistive and educational technology for pupils with SEN. In addition, three teachers provided feedback on the survey prior to its implementation to improve the phrasing of questions and

items. This multi-phase process served was used to ensure both the content and criterion related validity of the instrument.

Teacher Interviews

After collecting surveys from students, we scheduled interviews with five staff members, including the school principal, the special education coordinator, a 9th grade teacher, a 10th grade teacher, and the information and communications technology (ICT) teacher, who works across grade levels. Interview participants were recruited with assistance from the school principal after we provided information about the purpose of the study. The special educator and the ICT teacher were the only professionals working in these positions at the school, which is typical for lower secondary schools in Norway. The school has three to four main teachers for each grade level. The two teachers (from grades 9 and 10) that were asked to participate were selected due to their long tenure at the school and prior experience with supporting children with SEN in their classrooms.

Interviews were conducted in a meeting room at the school over the course of a single day in February of 2021. The interviews were semi-structured and based on a thematic interview guide. In addition, a selection of the survey results from students was used as a starting point for discussion. We had not identified responses from students with SEN or conducted comparisons between groups of students at this stage. However, teachers were given a general picture of the data from students based on averages and the percentage of different responses along the 6-point scale. Topics discussed in the interviews included the social, academic, and professional support provided to students, as well as participants' views on pupils' social and emotional learning and development. In addition, we were interested in finding out more about the transition between different phases of Corona pandemic restrictions, including the pragmatic and logistic challenges that occurred and how teachers and students coped with these. To ensure validity in the interviews, it was important to select key personnel with different responsibilities and positions in the school that were likely to have insights into the phenomena under investigation yet approach the questions from different points of view. Our reading of previous research provided an additional basis for bolstering validity in the interviews and developing the interview guide. The interview guide was discussed with practicing teachers and researchers who were not involved in the study to better understand the challenges that schools faced during this period (e.g., how and when different restrictions were enacted).

Study 2: Teacher Survey

Study 2 is based on a survey of primary and lower secondary school teachers who were enrolled in a year-long, online, professional development course that included a small number of in-person seminars prior to the pandemic. The course covered the use of educational technology in relation to the following five topic-areas: (1) inclusion, (2) social development, (3) reading and writing, (4) mathematics, and (5) innovation. In this sense, the participants can be considered a convenience sample, given that they were readily available to the researchers. However, this group also represents teachers who were in the process of developing their knowledge and skills related to educational technology and may therefore have unique insights into how accommodations were, or could have been, applied during school closings as a result of the pandemic. Surveys were distributed and collected in December 2020. Schools were closed for much of the spring of that year and some schools also had intermittent periods of homeschooling in the fall. The professional development course ended just prior to data collection with most of the final sessions being conducted on-line.

Teacher Participants

Participants in study 2 comprise 128 teachers working in 10 compulsory schools in southern Norway. Schools included 7 primary schools (grades 1–7), 1 lower secondary school (grades 8–10), and 2 combined primary and lower secondary schools (grades 1–10). No teachers from the case study school (study 1) participated in this investigation. Approximately 62% of participants were teachers in primary school, 27% worked in lower secondary school, and the remaining 7% worked across different levels of compulsory education. One hundred and five respondents were women (82%) and 23 (18%) were men. To ensure anonymity, participants were asked to indicate their age within a 10-year range rather than supplying their exact age or year of birth. The distribution of age groups was as follows: (a) 16% = 21–29 years, (b) 26% = 30–39 years, (c) 29% = 40–49 years, (d) 19% = 50–59 years. In addition, 5 participants were 60 years of age or older and 6 did not respond to the question. Based on these data, the sample appears to be demographically similar to teachers in Norwegian primary and lower secondary schools nationally (Statistics Norway, 2020).

The majority of participating teachers (77%) had no formal training in special needs education at the university or college level. Approximately 11% had one semester (30 ECTS) or the equivalent, and 12% had a year or more of university or college coursework in special needs education. When asked if they were directly responsible for the provision of special education, 30% answered "yes," 52% answered "no," and 18% indicated that they were "partially" responsible for providing this type of support.

Data Collection

The survey was sent by email to educators who took part in the professional development course described above (response rate = 54%). The email provided a link to the online survey, information about the purpose of the study, and information regarding ethical considerations, such as the procedures for storing, using, and anonymizing data, as well as assurance that participation was voluntary.

Together with the course leaders, we developed the survey to be used as an evaluation for the course and to investigate teachers' experiences with teaching during the Corona pandemic. Questions and items included in the survey were developed simultaneous to data collection in study 1. This process was informed by a review of relevant literature and feedback from practitioners at the case study school, as well as professionals involved in developing the teacher training course. The fact that questions were designed to closely correspond to those used in the student survey, which were further cross-validated in

interviews with teachers, served to enhance the reliability and validity of the instrument and the study as a whole. As with the survey to students, participants were asked to rate their responses on a 6-point scale (e.g., 1 = "not at all" and 6 = "to a high degree"). In addition, a small number of open-ended questions were added to allow participants to write in their responses or provide additional information.

Analysis: Study 1 and 2

All five of the interviews in Study 1 were audio-recorded and then transcribed prior to analysis. Personal information about the teachers, students, and schools was not included in the written transcripts to ensure participant anonymity. Initially, analysis of the transcripts concerned broadly identifying themes in relation to the purpose of the study and summarizing the beliefs and experiences of teachers and their students in general. A wide range of categories were identified, such as organizational approaches, academic support, learning outcomes, technical and practical solutions, classroom management, inclusive education, social wellbeing, mental health and motivation, parent involvement, and concerns about the legal rights of children with special needs. In the second phase, these themes were reduced by looking for ideas or "meanings" that could be merged or excluded and aggregating those that were most closely tied to the research questions for the current study.

In both studies, the survey data were analyzed using descriptive statistics at the item level. Due to the small sample sizes and skewness of distributions, we used Mann-Whitney *U* tests to compare groups in study 1 (i.e., SEN-pupils with other pupils) and Wilcoxon Signed-Ranks tests to assess the use of special education and general education approaches (pairwise) in study 2. Test statistics were converted to standardized z scores and reported with means and standard deviations for items, as they provide a straightforward indicator of trends and differences between groups. In study 2, analysis of teachers' perceptions of the quality of special education during school closures and the consequences of the pandemic were limited to descriptive statistics and are presented graphically (**Figures 1**, **2**). In addition, the survey to teachers included an open-ended question asking participants to indicate what groups of students they believed were most vulnerable to negative outcomes of the Corona pandemic. The written answers were categorized thematically by two of the authors and the percentage of topics (i.e., pupils perceived to be at risk) occurring for each theme were calculated based on the total number of statements identified.

Ethical Considerations

Attention has been given to ethical considerations throughout the research process and the guidelines and recommendations of the Norwegian Centre for Research Data (NSD) have been followed. At the start of interviews, teachers were instructed not to use the names of students or identifying information. Interviewees were informed that their participation was voluntary, that they could withdraw from the study at any time, and that all personal information would be kept anonymous in future dissemination of the research. Regarding the inclusion of students, NSD guidelines emphasize obtaining the consent of participants over the age of 12. Thus, although parents returned signed consent forms, pupils were nonetheless given both verbal and written information about the study and allowed to choose for themselves whether or not to participate. Both groups of survey respondents were informed that their formal consent was indicated by filling out and completing the online survey. All of the data collected was stored anonymously by using code numbers rather than names. We have also removed any information in the current text that could be used to identify individuals or schools that were involved in the research.

STUDY 1 RESULTS

Pupil Reported Approaches

Both interview and survey data provide a picture of the approaches that were used at the case study school during

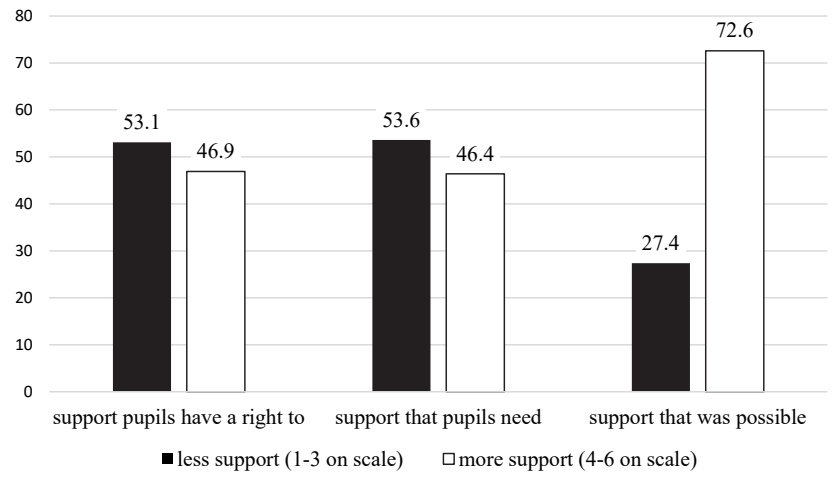

FIGURE 1 | Percentage of teachers indicating that students with SEN received more vs. less support in three areas during school closings.

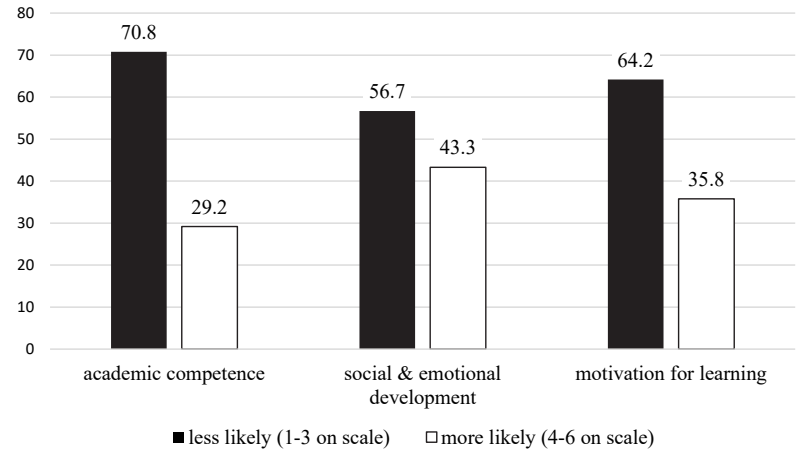

FIGURE 2 | Percentage of teachers indicating that students are more vs. less likely to experience long-term negative impacts of the Corona pandemic in three areas.

the period when schools were closed. Students rated five survey items in response to the question, "To what degree were the following approaches used at your school during the period of home schooling?" The items are presented in **Table 1** together with means, standard deviations, and results of comparisons. The most common approach was whole class, synchronous video instruction, with 88.8% of students indicating that this was a very common approach (i.e., 5–6 on the 6-point scale). Students reported that asynchronous teaching, such as providing assignments for students to complete on their own, was the second most common approach (77.8%). In contrast, individualized teaching, either *via* one-to-one video meetings or direct messaging were comparatively uncommon (i.e., ratings of 5–6 = 17.2 and 22.2%, respectively). Only one significant difference was found between groups. Special education students were significantly less likely (p = 0.007) to report that they engaged in whole class, synchronous instruction compared to their classmates (**Table 1**).

Teacher Descriptions of Approaches

In the interview portion of study 1, participants were quick to point out that many students with SEN encountered difficulties with online instruction. Thus, the decision was made to move some children with SEN back to school where they were taught individually or in small groups either on a full-time or part-time basis. The choice to move students was not based on a formal assessment or any set of predetermined criteria. Rather, it represented a largely improvised process that was influenced by an estimate of the success of online teaching in each case:

> *It was sort of up to the homeroom teacher, and there was a collaboration around who was given this option. Some students were 100% at school, others were here for 50%. So, it varied depending on the subject that they have difficulty with and if they have physical or psychological challenges. It was really varied.*

Although the decision was based on a variety of factors, it became clear from interviews that the main reason for moving students with SEN back to school was due to the perception that digital instruction was not effective for many of these students. According to interview participants, the transition back to school from home occurred fairly quickly. However, it was far from immediate, as the school's special education coordinator described:

> *That was one of the things we learned over time. Because they didn't get it right away. Because it was like 'oh, level red, no one's going out.' And then we quickly figured out that digital teaching didn't work, so they were pulled back to school one by one. So, it was part of the experience we gained, that when some students stayed at home, especially those who were [later] 100% here, they needed that extra attention. . . If you are at a fifth-grade level in math, you can't just be given a program at home. You need to be followed up pretty closely.*

Despite the fact that home schooling was abandoned for many students with SEN, there were efforts to accommodate these students during online teaching before the transition was made, as well as for students who remained at home. One of the teachers described an example of her efforts in relation to conducting synchronous, video instruction:

> *Say I had Norwegian, then I'd make an appointment with two of the students in my class who have dyslexia, 'you stay behind when the others go out,' [of Google Meet]. . . without anyone else knowing. But that I would have arranged with them in advance that they would stay back. Then, when the others logged out, I could explain the task again to them, or I would have some other tasks for them to work on that were more adapted and simplified.*

Another teacher described how this kind of individual time with students who were struggling occurred spontaneously or in response to the students' own initiative.

> *At first, I thought it worked well, but obviously it's difficult for these kids. You have to explain things really well. And I think when they sit there alone, it's hard to learn new material. It's easier in a group with others. You can't take up issues, you know, immediate questions there and then. It takes a little more effort to ask questions. . . They never ask in a group when everyone's sitting there. If they're going to ask me about something, it's because most people have gone out and then they can come in.*

TABLE 1 | Students' ratings of the frequency of distance learning approaches during school closings and results of between-group comparisons.

	SEN (n = 14)	Other (n = 66)		
	$\bar{x}$ (SD)	$\bar{x}$ (SD)	z	p
Digital video meetings between only you and the teacher	3.29 (1.90)	2.88 (1.55)	−0.569	0.570
Digital video teaching with the whole class (e.g., Teams, Google Meet, Zoom)	4.71 (1.82)	5.83 (0.52)	−2.69	0.007**
Assignments or activities that the teacher created and shared with you digitally (e.g., on Showbie, Teams, or It's Learning)	4.64 (1.45)	5.32 (0.91)	−1.59	0.113
Messages to the whole class *via* group messaging systems (e.g., e-mail, chat rooms, or bulletin boards)	4.64 (1.55)	4.62 (1.51)	−0.093	0.926
Messages between only you and your teacher *via* messaging systems (e.g., e-mail, chat, text message)	3.86 (1.88)	3.17 (1.45)	−1.33	0.184

Mann-Whitney U test. $\bar{x}$ *= mean, SD = standard deviation.* $^{**}p < 0.01$.

In summary, interview findings reveal an *ad hoc* process of determining which students would return to school for special education. At the same time, efforts were made to provide individual instruction both on the part of adults and the children with SEN themselves by adapting materials and scheduling one-on-one time "together" with students in need.

Student Perceptions of Consequences

Prior to responding to questions about the consequences of the Corona pandemic, students were asked to evaluate different aspects of the quality of their education during the period with home-school compared to the period after they had returned to attending school in person. Students were asked to rate three aspects of home-schooling as well as the overall quality of teaching on a 6-point scale in which 1 was anchored at "much worse" and 6 represented "much better." Results are presented in **Table 2**. Average responses were near neutral on the scale (3.5) or slightly higher, indicating that students, on average, had somewhat positive perceptions of the quality of online learning. Comparisons of SEN students' ratings to those of their classmates revealed a significant difference on perceptions of the overall quality of teaching, where SEN students had more negative views. In addition, average ratings for the item "how much you learned" approached significance (p = 0.076), where students with SEN were also more critical about the quality of their education during the period with home-schooling than were other pupils.

Students were then asked to assess the negative effects of the Corona pandemic on pupils' wellbeing with respect to four specific areas: (a) learning in different subjects, (b) social relationships, (c) mental health, (d) motivation for learning. Mean responses across all students were between 3.54 (SD = 1.35) and 3.64 (SD = 1.16). In this case, higher ratings represent perceptions of increased negative consequences and a response of 1 indicates a belief that the pandemic will likely have few if any negative consequences in a given area. Thus, average results near the mid-point of the scale reflect a moderate degree of concern about the pandemic's impact on students' wellbeing. While there was little variation across the four areas, highest ratings fell in the area of "social relationships," where 27.2% of students provided a rating of 5 or 6 (i.e., a highly negative impact). The area with the lowest average rating was "mental health." However, 14.5% of students nonetheless provided high ratings on this item (i.e., 5–6 on the scale). In comparing responses for students with SEN to other students, only one item revealed significant differences. The SEN group rated "social relationships" ($\bar{x}$ = 4.29, SD = 1.07) significantly higher (more negative impact) than did their classmates ($\bar{x}$ = 3.53, SD = 1.26) without special needs (z = –2.08; p = 0.038).

TABLE 2 | Students' ratings of the quality of their education during school closings and results of between-group comparisons.

	SEN (n = 14)	Other (n = 66)		
	$\bar{x}$ (SD)	$\bar{x}$ (SD)	z	p
How much you learned	3.29 (1.49)	4.00 (1.22)	−1.77	0.076
Your motivation for learning	3.23 (1.68)	3.82 (1.34)	−1.11	0.276
Your effort at school	3.62 (1.50)	4.05 (1.23)	−0.909	0.363
Quality of teaching	3.29 (1.14)	4.06 (1.37)	−2.06	0.040*

Mann-Whitney U test. $\bar{x}$ *= mean, SD = standard deviation.* $^{*}p < 0.05$.

Teacher Descriptions of Consequences

One of the most salient findings from the qualitative portion of study 1 is the recognition amongst teachers and school leaders that during the period of the pandemic when restrictions were at the most stringent levels, students with SEN were not provided with the support that they have a right to receive under Norwegian law. The principal was straightforward in recognizing this failure:

> *In general, some special education was dropped for those who are entitled to it. It just was. If you think about the [eligibility] decisions and the number of hours they are entitled to, and things like that, we just couldn't provide everything.*

The school's special education coordinator echoed this statement, stating, "We weren't able to provide all of the hours [of special education] that they actually have." The logistics of coordinating online, individualized instruction was simply too difficult to achieve. Even after some students returned to school, school leaders noted, they still only had the resources to follow up on those in greatest need.

Several of the participants stated how difficult the situation also was for teachers. In particular, they pointed to frustrations surrounding engaging students in online learning and maintaining positive connections with pupils, who often "didn't have their cameras on," leaving teachers feeling like they were "talking to themselves."

When they turn off their camera and you don't get a response. It's incredibly tough. As a teacher you're dependent on a response. So, it does something to you. It was really frustrating. I don't think technology can ever give you the kind of dynamic that occurs with a group of people working together. That's really important. And there is no chance of getting that here (holds up a mobile phone).

Similarly, when asked about the quality of learning that occurred during home-schooling, teachers were largely critical. However, the sentiment that learning was somewhat impeded was not limited to concerns for students with special needs. For example, another interview participant had this to say:

You're so dependent on sitting together and talking and doing things together to learn something new. There's a lot of learning going on there, I think. But it's so easy to sneak away and do nothing [with home-schooling]. Even when they do deliver, they don't deliver much.

Nonetheless, all of the interview participants pointed out that certain students struggled far more with online teaching than did others. Moreover, these difficulties were not limited to academic achievement, but were also tied to motivation and psychological wellbeing. The following statements exemplify this sentiment:

The students with special education, if they don't understand, they just give up. They don't keep trying. So, I noticed a big difference in what they achieved. Because we had an expectation that in the end, they all had to hand in what they had done. But those who struggle and don't get it, they just gave up.

They didn't get as much benefit as they would have had, if they had been in school. And I think especially for those from the middle level and below, then, and those with special education. I think, first and foremost academically, but also in terms of mental health. Because, unfortunately, these things are connected.

In contrast, one of the interview participants also speculated that in comparison to students with learning difficulties, some higher-achieving students may have actually benefited from the period of home schooling:

Because there's so much non-verbal language going on, right, picking up on things that happen right then. What's frustrating is that weak students lose out on this. While the strong students. what I mean to say is. some of these students probably even benefit more from it. Like, if they are very independent and like to work, then they can still do very well. And so, I sit there, and they ask up and down about everything. The strong ones can almost get better teaching that way. But for the struggling students, those are the ones that school is really designed for. So, for them, I felt like this was much worse.

As the quote above suggests, there was a sense that the key aspects of physically attending school in the same classroom, such as non-verbal communication, are important parts of education that are not replaceable in online instruction. As noted above, teachers also underlined the difficulty of following up on students who were given more responsibility for self-assessment during the period with home-schooling and the relief that they felt when these students returned to school:

. . . a lot of the students pull back a bit, and say, 'no, no, they can just do it at home' and 'they got everything done'. And they actually can't figure it out alone. . . . I found that challenging. That's why it helped a lot when we got some of them back to school, because then you can ask them, "How did it go?" and they are much more honest when you have them face to face than when you have them on a screen.

In summary, teachers talked about how both they themselves and the students lost motivation for teaching and learning during home-schooling. The general emphasis was on the difficulty of attending to the needs of the students who struggle most academically, however, the students' mental wellbeing was also a concern. From a legal as well as a developmental perspective, another pertinent finding is the loss of special education services for many students during this period, which teachers and school leaders readily acknowledged.

STUDY 2 RESULTS

Teacher Reported Approaches

In study 2, participants were asked to rate the degree to which they used five different approaches during the period in which schools were closed both in general and for the purpose of special education. Overall, the most commonly reported approaches were (a) creating materials and activities for students and sharing them online (asynchronous) and (b) communication with individual students using one-to-one messages, such as e-mail. Mean values across both groups of teachers for these two items were 5.30 (SD = 0.90) and 5.12 (SD = 1.26), respectively. Using existing internet-based resources and programs was also prevalent for both groups of students ($\bar{x}$ = 4.56, SD = 1.26). The percentage of participants reporting that these three approaches were "very common" (i.e., 5–6 on the 6-point scale) ranged from 54.7% (using existing resources) to 84.3% (sharing teacher created materials online).

In order to gain insight into potential differences in approaches for students with SEN and their classmates, we compared teachers' ratings of the use of each approach for the provision of special education to teaching in general education using Wilcoxon Signed-Ranks tests. As indicated in **Table 3**, there were significant differences between teachers' ratings of the two areas with regard to three items. These include: (a) synchronous one-to-one video meetings, (b) synchronous digital teaching with groups, and (c) assignments or activities that teachers created and shared with students digitally. Participants reported significantly less frequent use of all three strategies for the provision of special education during home-schooling across all three of these areas (**Table 3**).

Teacher Perceptions of Consequences

Participants in study 2 provided an indication of the quality of special education provided to students with SEN during the period of home-schooling by rating the degree to which these students received (a) the support that they have a right to, (b) the support that they actually need, and (c) the support that schools were capable of providing given the circumstances. Results are presented graphically in **Figure 1** as the percentage of ratings on

TABLE 3 | Teachers' reported use of distance learning approaches in special and general education and results of pairwise comparisons.

		Special ed.	General ed.		
	n	$\bar{x}$ *(SD)*	$\bar{x}$ *(SD)*	*z*	*p*
Synchronous one-to-one video meetings or teaching	93	3.40 (1.68)	4.52 (1.48)	−2.89	0.004**
Synchronous digital teaching with groups or whole class	89	2.51 (1.52)	3.78 (1.95)	−3.14	0.002**
Assignments or activities that you created and shared with students online	96	4.96 (1.07)	5.23 (1.21)	−2.80	0.005**
Assignments or activities that were a part of existing resources, such as software or internet sites.	91	4.65 (0.95)	4.65 (1.25)	−0.496	0.620
Communication with individual students *via* messaging systems (e.g., e-mail, chat, text message)?	90	4.98 (1.08)	5.23 (1.21)	−0.790	0.430

Wilcoxon Signed Ranks Test. $\bar{x}$ *= mean, SD = standard deviation. **p < 0.01.*

either side of the mid-point for the 6-point scale (i.e., 1–3 vs. 4–6). Mean ratings for each of these items were 3.40 (*SD* = 1.22), 3.46 (*SD* = 1.13), and 4.28 (*SD* = 1.14), respectively. As the means for the first two items indicate, participants were approximately evenly divided with respect to these issues. In contrast, the vast majority of participants (72.6%) tended to agree that students with SEN received the support that it was possible to provide given the challenges faced by schools during the height of Corona pandemic restrictions (**Figure 1**).

Although not specifically directed toward pupils with SEN, a question to teachers about the likelihood that the pandemic could have negative effects for pupils in general provides insight into teachers' primary areas of concern. Teachers were asked to rate the degree to which some students were likely to experience long-term, negative effects with respect to (a) their academic competence, (b) their social and emotional development, and (c) their motivation for learning. These findings are presented graphically in **Figure 2**, again, as the percentage of responses on either side of the 6-point scale. Mean ratings for the three items were 2.86 (*SD* = 1.24), 3.35 (*SD* = 1.31), and 3.03 (*SD* = 1.32), respectively. These results are near or below the theoretical neutral of the scale for all three items. As can be seen in **Figure 2**, the social and emotional development of pupils appears to be the area of greatest concern, where 43.3% of participants indicated that long-term negative effects were more "likely" than not for some students.

In addition to these two questions, participants in study 2 were asked to provide written descriptions of the students that they perceived as being most vulnerable to negative outcomes as a result of the Corona pandemic. There were 61 valid responses to question (47.7%), which were coded into 84 distinct categories or "groups" of students. Analysis revealed that the most prominent theme fell into the category of children who have little support at home and/or those who have a difficult home environment (approximately 40% of statements). Pupils who "struggle in school" and who have "psychological or social difficulties" were the next most commonly occurring category, both having been reported about 10% of the time. Teachers mentioned "students with learning disabilities" and those with a limited social network at about equal rates (5–8% of statements). Two closely related categories, (a) children who struggle with working through tasks on their own and (b) those with little motivation for school were coded for approximately 4% of statements. A range of other issues were also mentioned by teachers, including low socioeconomic status, having multiple children at home, those without internet, families an immigrant background, "gamers" and so on. Of course, these themes are not mutually exclusive and there is little doubt that some children are exposed to many overlapping risks.

DISCUSSION

Taken together, results from the two studies provide answers to our three overarching research questions. From a broad perspective, findings suggest two overall trends regarding teachers and students' perceptions of the consequences of the pandemic and the approaches that schools and teachers adopted during this period. On the one hand, teachers and students believe that they coped well given the circumstances and that the long-term impact on most students will be minimal. However, both studies indicate areas of concern for students with SEN, citing a failure to meet the needs of these students in the context of online home-schooling and a loss of the support that students have a legal right to receive. This is consistent with evidence from other countries, where teachers and students have expressed similar fears (e.g., the US: Goodrich et al., 2021; Lebanon, Jordan, and Palestine: Moghli and Shuayb, 2020; Spain: Simó-Pinatella et al., 2021; Australia: Page et al., 2021).

Research Question 1. Educational Approaches

Our first research question was aimed at identifying the educational approaches used by teachers when schools were closed. In study 1, pupils reported that the most common approaches were whole class, synchronous, video instruction and teachers posting of assignments or activities online. These findings are partially supported by results from study 2, in which teachers indicated that one of the most common approaches used in both special and general education involved teachers sharing assignments and activities with students online. However, teachers in study 2 also included communication *via* messaging as a primary approach and placed less emphasis on whole class, synchronous instruction. These findings align with another Norwegian study (Blikstad-Balas et al., 2022), in which a survey of over 4,000 parents found that the most common digital activities engaged in by children were completing tasks online (96%), talking with teachers and classmates (82%), teaching in real-time (60%), and watching instructional videos (31%). A logical explanation for the discrepancy between pupils' and teachers' responses is the fact that the time that teachers spent

preparing tasks and sending messages to students was not part of each student's personal experience. This illustrates how "downtime" for students during a normal school day can easily be experienced as isolating or demotivating during online home-school. Students do not have the possibility of "eavesdropping" on their classmates who are being assisted by the teacher or the comfort of knowing that support or a prompt to stay on task are there if they need them.

It is also noteworthy that approaches that were used in online teaching largely mimicked the methods that are typically prioritized by teachers in traditional classrooms. Studies show that teachers tend to spend most of their time engaged in whole class instruction, which is then supplemented with individual attention to the lowest-performing students (Cameron et al., 2012; Justice et al., 2021). The transfer of traditional approaches directly from the physical to the digital classroom is perhaps to be expected, given that the shift to online learning occurred effectively overnight.

Furthermore, the capacity to make such a rapid transition is dependent on having sufficient infrastructure, resources, and digital competency both in schools and in homes. It is important that children and families have the necessary equipment to participate in online learning. In Norway, this was achieved by schools supplying students with the same digital devices that they normally used in their classrooms. Blikstad-Balas et al. (2022) found that approximately 4 out of 5 students in grades 1–4 used equipment supplied by their school, while more than 80% of lower secondary students used their school's equipment. Thus, with respect to digital infrastructure, the Norwegian educational system was fairly well-prepared for the move to online learning. This is supported by recent studies indicating that Norwegian teachers and school leaders are largely satisfied with their school's digital equipment and their own competence with digital tools (Gudmundsdottir and Hathaway, 2020; Vika et al., 2021).

Research Question 2. Divergent Experiences

The second research question considered how the experiences of students with SEN differed from those of other students during school closures. Due to concerns about the learning and wellbeing of pupils with SEN, some of these children and youth were allowed to return to school. This change was made possible due to exceptions in infection control restrictions that provided access to schools for children with SEN and children of parents employed in professions with a critical function in society. The Norwegian Directorate of Health (2020) offered the following reasoning, "students with special needs may require physical accommodations, assistance, and physical contact. It will not always be possible to follow the guidelines for social distancing and group size" (p. 25). Regulations highlighted that the pupil's specialized care needs should come first and that schools that were temporarily closed were, nonetheless, responsible for providing this support. However, they also stated that it was the individual preschool or school that was to make the decision as to who should be given the opportunity to return to school on a case-by-case basis (Nilssen et al., 2020, p. 10).

Thus, national authorities provided little specific guidance on how to approach digital home-schooling or how to accommodate students in need of extra support (Blikstad-Balas et al., 2022). Guidance from local authorities was also limited. Federici and Vika (2020) found that between 25 and 40% of Norwegian schools received minimal or no guidance from their local school authority about how to address the needs of vulnerable pupils (Federici and Vika, 2020). Given this background, it is not surprising that interview findings from study 1 reflect a rather *ad hoc* process for determining which students were given the option of returning to school and to what extent they were permitted to be there. These findings also raise concerns about struggling students who did not receive this option and the potential social and emotional repercussions of providing a segregated, school-based program for students with SEN while their fellow students remained at home.

Faced with this dilemma, it appears that teachers actively sought to find the best option available. In interviews, teachers described how online approaches worked poorly for learners with SEN, observing that these students did not ask questions and struggled to follow instructions during online teaching. In turn, they attempted multiple strategies, such as having students "stay behind" after whole class teaching. Also, survey findings from study 1 indicate that, compared to pupils without special needs, students with SEN were significantly more negative about the overall quality of their education during this period and were more critical about much they learned. Their concerns appear to be supported by research suggesting that online teaching is less effective for students with SEN, who require a high degree of psychological and communicative proximity to teachers (Panagouli et al., 2021). The freedom and autonomy that accompanies distance learning requires more self-regulation, meta-cognitive activities, grit, and persistence than regular teaching (Whiting et al., 2008; Chen and Wu, 2012; Martin et al., 2020). These conditions align well with the didactical needs of gifted and high-achieving learners (e.g., Stoeger and Zeidner, 2019), as one of the teachers in study 1 also pointed out. However, for students with SEN, the opposite is true, they are likely to require closer guidance and continuous corrective feedback in the learning process.

Research Question 3. Consequences and Concerns

One of the most troubling findings regarding the consequences of the pandemic for students with SEN is reflected in the picture provided by interview participants in study 1, in which teachers reported that these students lost out on the amount of special education that they should have been provided by law. This was further confirmed by responses from teachers in study 2, where approximately half of all participants indicated that students with SEN received less support than they need and have a right to receive. It is also consistent with national data collected by the Norwegian Directorate for Education and Training [NDET] (2020) showing that one out of three students with special education decisions received fewer hours than planned during the spring of 2020. Similar findings showing a loss of support

for students with SEN have been described in other regions of the world. For example, an international survey of parents of students with intellectual and developmental disabilities found that 74% of students experienced a loss in educational services (Jeste et al., 2020). While the extent and impact of these losses have yet to be thoroughly investigated, research suggests that the movement to online teaching resulted in a reduction in individualized education, access to special expertise, and other types of support (DiGiovanni et al., 2021).

On the positive side, many students and teachers were optimistic about the long-term effects of the pandemic. Findings from both studies suggest that, on average, teachers and students were neutral or moderately positive about the manner in which schools dealt with closures, as well as the quality of teaching provided. Approximately two-thirds of teachers in study 2 indicated that students are "unlikely" to experience long-term negative effects of the pandemic. Interview findings suggest that teachers may have assumed that students who were not able to benefit from online instruction were able to compensate for any losses they may have incurred once they returned to school and received closer attention and follow up.

Nevertheless, although the majority of teachers did not foresee long-term adverse effects of the pandemic, it is not inconsequential that between 10 and 20% of participants in study 2 indicated that negative effects were "very likely" with respect to all three areas assessed (i.e., social and emotional development, academic performance, and motivation). Of these three areas, findings suggest that teachers were most concerned about pupils' social and emotional development. It is also relevant to note that pupils with "psychological or social difficulties" were one of the most prominent categories of students deemed to be at risk of negative outcomes based on our analysis of teachers' written responses. More important, almost 30% of students in study 1 indicated that the pandemic was likely to have a negative impact on social relationships. In accordance with findings from research question 2, pupils with SEN provided significantly higher ratings than did their peers when asked about the impact of the pandemic on social relationships.

Dubayova et al. (2021) found that students with SEN were less satisfied with their relationship to their classmates and perceived more conflicts and less cohesion within their class compared to other pupils during a long period of distance learning. It is well-established that students with SEN often struggle with friendships and tend to have lower social status than their peers without special needs (Petry, 2018). Thus, it is understandable that these pupils would be particularly worried about the negative impact of the pandemic on social relationships. Interestingly, it may also explain why many teachers in study 2 suggested that students who do not have an established social network are among those who are most vulnerable to negative outcomes as a result of the pandemic. In simple terms, these students often rely on school to maintain and guide their social lives. Yet, the social and psychological dimensions of online learning are often neglected or diminished (Kreijns et al., 2003).

In closing, a key finding derived from the analysis of teachers' written responses is that teachers perceive students who have insufficient support at home to be at greatest risk for negative outcomes. While this may be the case for pupils with and without SEN, they also express concern for struggling and low-performing pupils and, more specifically, pupils with SEN. Interview findings from study 1 also point to challenges with respect to motivating students with SEN and other struggling pupils to "engage" in learning activities during digital home-schooling. In a similar manner, Page et al. (2021) found that teachers were concerned that students with SEN might fall even further behind due to their absence from digital teaching for reasons such as refusal to participate or factors at home that did not allow them to participate. Thus, the attentional demands of online school are an unavoidable challenge (DiGiovanni et al., 2021) and support from parents or other adults in the home is unmanageable, yet essential asset. Parents can contribute by ensuring that students remain on-task, understand instructions and concepts, and they can assist teachers in monitoring their child's progression. For students with SEN, the potential combination of poor support in the home and existing learning difficulties represents a serious, compounded risk.

Limitations

When reading our findings, one should take into consideration several limitations related to the two studies presented here. Firstly, we did not differentiate between different types of SEN. Pupils with SEN are not a homogeneous group (e.g., Cline and Frederickson, 2009) and vary in the kind of support needed. It is certainly possible that within group differences may be present regarding how these pupils coped with the lockdown and their perception of the teaching approaches that were used during this period. It should also be noted that the use of single items, rather than multi-item scales as the unit of analysis has potential implications for the reliability of survey responses. Furthermore, our sample of pupils with SEN in study 1 is small. While our findings are consistent with research conducted to date, future studies with larger samples are needed to further validate these findings.

In addition, we did not attempt to account for teachers' differing levels of experience in teaching pupils with SEN or their different professional positions (e.g., special or general educators). Thus, our findings may be influenced by the fact that teachers had different experiences with online education depending on their professional obligations with respect to the provision of special education. Nevertheless, we posit that the perspective and experiences of all teachers are important to consider when investigating the educational context pupils with SEN. This is especially true in the Norwegian context, where emphasis is placed on inclusive education and shared responsibility for the education of students with SEN across educational professionals (Cameron, 2016; Norwegian Directorate for Education and Training [NDET], 2020).

Finally, the teachers who participated in study 2 were taking part in a professional development course on the use of digital technology in education at the time of data collection. This might have influenced their answers regarding the manner and capacity of schools to deal with online instruction during school closures. It is possible that these teachers held a better understanding of how to use digital technology compared to teachers who

did have not have similar training. Indeed, research suggests that educational quality is improved when teachers already have experience with online education and technology (Teodorescu et al., 2021). At the same time, the influence of the professional development course on teachers' responses is probably limited given that they had only partially completed the course when Norwegian schools were closed. Therefore, we consider our sample to be representative, but recommend that future research take into account teachers' digital competency and previous training in the use of educational technology.

Implications for Research and Practice

Our findings suggest that the infrastructure and resources to allow a shift to online learning were largely in place in Norway. Nonetheless, it appears that in many cases traditional classroom teaching approaches were essentially transferred directly to online instruction, albeit in a much more compact and limited timeframe. While it is uncertain that other strategies would have been more successful, it is clear that this approach to digital home-schooling functioned poorly for many pupils with SEN. Thus, the choice was made to allow some of these students to return to school. Despite this change, our findings are consistent with previous research showing that Norwegian students with SEN did not get the assistance and support that they need or that they have a right to receive. We propose that a greater level of guidance from regional and local school authorities could have allowed for a more uniform approach and potentially improved the quality of education and support provided during this difficult period. It is possible that schools will one day again face a new wave of the Coronavirus disease or similar threat that will lead to school closings and a return to on-line teaching. Research is needed to inform the development of policies and practices that teachers and schools can use to ensure that this transition is safe and effective, and that children with SEN do not lose access to the support that they require.

Schools are intended to be an arena for academic learning, but they are also places for children and youth to develop social skills and friendships. Social interaction is essential for learning and development, and important for nourishing and maintaining strong mental health. The two studies presented here contribute to the research by giving a greater voice to students with SEN. Few other studies have asked these students directly about their experiences and expectations regarding the impact of the pandemic. We found that these pupils were more critical of online teaching and more concerned about its impact on social relationships than were students without SEN. Perceptions that the pandemic may have negative consequences for children's emotional and social wellbeing were also highlighted by teachers. Despite these concerns, many participants were optimistic about the long-term effects of the pandemic. Nevertheless, it is important to be watchful and continue to build on the knowledgebase in this field, both for the sake of children who have already been affected by these conditions and in the event that schools are faced with similar challenges in the future.

CONCLUSION

Across the world, people have been profoundly affected by the Corona pandemic due to infection and illness. At the same time, the need to control the spread of the virus has led to pervasive restrictions that few people have ever encountered. The closure of schools has meant that parents and caregivers have had to step in as teachers and many children with SEN have lost out on the services and specialized support that they normally receive at school. For many of these children, the pandemic has resulted in a loss of teaching time, increased stress and anxiety, strains on their social relationships, and poorer learning outcomes (Jeste et al., 2020; Asbury et al., 2021; Dubayova et al., 2021; Panagouli et al., 2021). These conditions may place children with SEN at risk of experiencing even greater difficulties in the future. While research in this area is expanding rapidly, there is still little known about the consequences of school closures for students with SEN and the approaches that teachers and schools used to meet the challenges that these changes brought about. The current project represents an effort to address this need and to document and explore the situation for students with SEN in Norway during the first year of the global Corona pandemic.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Students' written informed consent to participate in this study was provided by the participants' legal guardian.

AUTHOR CONTRIBUTIONS

DC, MM, and EC contributed to the conception and design of the study. DC and EC performed the statistical analysis. DC and MM performed the qualitative analysis. DC wrote the first draft of the manuscript. MM and EC wrote sections of the manuscript. All authors contributed to manuscript revision, read, and approved the submitted version.

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