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Austrian Elementary School Teachers' Perception of Professional Challenges During Emergency Distance Teaching due to COVID-19

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Schools around the world have transitioned to emergency distance teaching due to the COVID-19 outbreak. In particular, the first lockdown (in early 2020) came unexpectedly for all actors and stakeholders in Austria. School authorities, parents, students and, above all, teachers were faced with considerable challenges. The aim of the present study is to evaluate the perception of Austrian elementary school teachers about distance teaching during the first lockdown. Using two different qualitative data sets from the Inclusive Home Learning (INCL-LEA) study, the following research question was investigated: what are the main challenges that elementary school teachers faced in distance teaching in Austria due to COVID-19? A multimethod qualitative research was carried out to answer the research question, and the data were evaluated using the topic analysis method. The teachers identified five greatest challenges: i) a lack of personal contact with the students; ii) additional workload and more stress, iii) non-existent technical equipment; iv) a lack of digital skills; and v) an inability to offer individual support for students at risk. This study has shown that better policies are needed to avoid these problems. Such solutions not only require the purchase of digital devices, but also the development of pedagogically well-thought-out and planned curricula and the provision of opportunities to improve digital skills. Furthermore, it also showed that sustainable working conditions needed to be created to counter the long-term effects of the heavy workload on teachers. However, the difference between distance teaching in times of the pandemic and regular online teaching also needs to be considered when developing and implementing policies.

Keywords: emergency distance teaching, COVID-19, elementary schools, Austrian elementary teachers, main professional challenges

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1 INTRODUCTION

The COVID-19 pandemic led to numerous challenges for nearly all social areas, including education (Huber and Helm, 2020). Because of the pandemic, the school closures in a total of 188 countries resulted in far-reaching challenges and changes for more than 1.8 billion children (OECD, 2020a). Due to the national COVID-19 regulations, elementary school teachers in Austria were forced to adapt to the circumstances and implement forms of teaching that were rarely or not at all used during regular in-person education insofar. Accordingly, elementary school teachers had to become familiar with those teaching methods that could be put into practice during distance teaching, which can be

characterized as the spatially separated transfer of knowledge and skills (Klieme, 2020). The first closing of the schools from March to May especially posed numerous difficulties for all educational staff.

1.1 Conversion to Distance Teaching

Until March 2020, the typical teaching situation at schools occurred in the form of personal encounters between students and teachers. Students were present in the classrooms and had to actively participate in order to subsequently reproduce knowledge in the context of written or oral assessments (König et al., 2020). During the global outbreak of COVID-19 in early 2020, governments asked educational institutions to shift from familiar, traditional forms of in-person instruction to distance teaching (Rogers and Sabarwal, 2020). In Austria, political actors passed on important information on further procedures only a few days before the school closures. Therefore, elementary school teachers, as well as teachers from other school levels, had very little time to adjust to the unusual situation. During the first phase of school lockdowns, teachers were allowed to exclusively repeat content that the students had already learned. Later, however, the teachers were called upon to teach new subject matter as well (Huber and Helm, 2020).

The abrupt school closures during the COVID-19 pandemic occurred at a time of rapid change in technology (König et al., 2020). This growing technical influence is reflected in all areas of life, not least in the area of education. Today, teachers in many countries around the world educate so-called "digital natives" (Prensky, 2001), for whom new technologies are considered an important part of life (Scherer et al., 2019). Accordingly, current developments suggest that several countries are starting to include digital competencies in their respective curricula (e.g., Siddiq et al., 2016; Flórez et al., 2017). The advantages of using technology in classrooms, such as facilitating learning processes (Shute and Rahimi, 2017), motivating students (Saine, 2012) or preparing youths for the digital requirements of their future career (Preston et al., 2015) have been suggested by several studies. However, the rapid transition to distance teaching has caught many schools unprepared (Helm et al., 2021). Accordingly, recent findings suggest that both technology-aware teachers as well as technology-skill-deficient teachers experienced numerous challenges due to the shift to distance teaching (Kundu and Bej, 2020; Kundu and Bej, 2021). Several studies suggest that tendencies of digitalization may have already advanced large parts of education systems and contributed to improvements in learning processes in higher grades (e.g., Lu and Law, 2012; Edmunds and Hartnett, 2014). Nevertheless, little is known about distance teaching in elementary schools (Hilli, 2018).

Staying at home for several weeks with an uncertain outlook for the future was considered a new and unfamiliar situation for all educational stakeholders (Colao et al., 2020). In order to enable learning processes during such a difficult time, teachers had to quickly find new ways of teaching and acquire or develop the necessary skills (König et al., 2020). When circumstances permitted, some teachers decided to use digital teaching methods in order to maintain learning processes (e.g., Cordes 2020; Huber et al., 2020; Schrammel et al., 2020). However, for a large number of teachers, the implementation of digital teaching formats was a major challenge, especially in the area of elementary schooling (e.g., Hilli, 2018; Kim and Asbury 2020). Accordingly, several studies show that digital forms of instruction were used much less frequently in elementary schools than in other school levels (e.g., Eickelmann and Drossel, 2020; Thies and Klein, 2020). Also, compared to teachers in higher levels, elementary school teachers more often provided students with learning material that parents could pick up at school (e.g., Eickelmann and Drossel, 2020; Schwerzmann and Frenzel 2020). One possible reason for this could be the poorer preparation for distance teaching among elementary school teachers (Eickelmann and Drossel, 2020; forsa, 2020). In addition, elementary school students often do not have the necessary level of media literacy that is required for successful distance teaching (Lorenz et al., 2020). Nevertheless, Kämpf and Winetzhammer (2020) reported that at the beginning of the pandemic, elementary school teachers in Austria also frequently used digital teaching and learning tools such as the reading app Antolin or various learning CDs. In addition, some elementary teachers indicated that adapting learning opportunities to the individual circumstances of students' families was an important issue. For this reason, elementary school teachers opted to use digital learning content voluntarily (Kämpf and Winetzhammer, 2020). After a few weeks of continued school closures all over Austria, however, numerous elementary school teachers decided to extend the use of digital learning formats. Thus, at a later stage of the pandemic and in order to stay in contact with the students in the best possible way, more and more teachers found their way to video platforms such as Zoom or Skype (Kämpf and Winetzhammer, 2020).

1.2 The Burden of Distance Teaching

The decision to become a teacher is often driven by the desire to bring about a change in the lives of young individuals (Anderson et al., 2021). Emotionality, empathy and caring for others are considered central aspects of a teachers' professional identity (Jones and Kessler, 2020). However, these qualities of the teachers' personality and work can involve some risks, since multiple studies have shown that about one-third of teachers were stressed or extremely stressed even before the pandemic (e.g., Unterbrink et al., 2007; Zurlo et al., 2013; Moy et al., 2014; Lambert et al., 2015). The lockdown of the schools and the missing contact with students made it more difficult for teachers to provide adequate support to their students as well as to deal with new types of teaching methods using digital media. It can be assumed that these two factors play an important role in the pandemic-related amplification of teacher strain (Klapproth et al., 2020). The COVID-19 pandemic also contributed to a noticeable sense of insecurity among teachers (Anderson et al., 2021). Both uncertainty about what will happen next and concern about students at risk were cited as the most common stressors in the study conducted by Kim and Asbury (2020).

Several studies suggest that teachers felt rather burdened due to the transition to distance teaching and on average experienced

a medium-to-high amount of stress during the school closures (Huber et al., 2020; Klapproth et al., 2020; Anderson et al., 2021). In addition, those teachers who spent a relatively large amount of time in distance teaching felt even more stressed (Klapproth et al., 2020). However, it became apparent that the proportion of elementary school teachers who taught digitally was rather low compared to teachers from other school levels (e.g., Huber et al., 2020; Helm et al., 2021).

Studies also show that some teachers reported a clearly noticeable increase in their workload during distance teaching as well as in psychosomatic problems (e.g., Klapproth et al., 2020; Prado-Gascó et al., 2020; Tengler et al., 2020; Anderson et al., 2021). The additional expenditure for teachers during the first school closures is also reflected in the diminishing "boundaries" between their work and private life, as reported by the teachers interviewed by Kim and Asbury (2020). This fact should not be overlooked when studying the pandemic-related increasing burden of teachers since, in addition to teaching their students remotely, some had to bear other responsibilities such as taking care of their own children or vulnerable family members (Kim and Asbury, 2020).

1.3 Personal Contact and Social Learning

Functioning teacher-student relationships are critical to the emotional well-being of teachers, especially in the area of elementary schooling (e.g., Hargreaves, 2000; Spilt et al., 2011). In the long run, disruptions in this relationship can lead to a strong psychological strain on teachers (Spilt et al., 2011). Also, the lack of contact with teachers may have grave consequences on students. Accordingly, some study results suggest that, compared to students from higher grades, elementary school students missed their teachers more often during the distance teaching (forsa, 2020; Holtgrewe et al., 2020).

Letzel et al. (2020) reported that a number of teachers stated that they were missing their students during the school lockdown and overall suffered greatly from the lack of contact with the learners. In addition, the results of the study by Anderson et al. (2021) show that, during the period of distance teaching, the teachers interviewed named the missing connection to their students as their main stress factor. During this period, teachers had to stay in close contact with their students in order to maintain students' motivation and follow their learning processes (König et al., 2020). Considering the pandemic-related circumstances and the resulting distance teaching, it becomes apparent that social learning processes in which teachers and students work together on learning tasks were only possible to a limited extent.

Because of the school closures, communication between elementary school teachers and students took place primarily through the parents (Huber et al., 2020; Ferguson et al., 2021; Kundu and Bej, 2021). In some cases, this form of alternative communication led to considerable difficulties. Thus, the teachers' challenge of reaching a large number of students and their associated concern about the interrupted relationships has been outlined in several studies (e.g., Huber et al., 2020; Kim and Asbury, 2020; Porsch and Porsch, 2020). According to Schwab and Lindner (2020b), the teachers interviewed stated that, on average, they could not reach 9.6% of the students at all.

In addition, numerous teachers reported on the importance of parental support in terms of effective distance teaching (Huber et al., 2020; Moss et al., 2020; Kundu and Bej, 2021). Some teachers and school administrators even criticized the parents' lack of digital knowledge, responsibility and support, which further exacerbated the problem of maintaining contact with the students (Huber et al., 2020; Kundu and Bej, 2021). As such, several research works show that teachers found it difficult to establish contact due to the lack of digital skills on the student side (e.g., Stenman and Pettersson, 2020).

Overall, it can be assumed that, following school closure, the educational relationship between students and teachers has been interrupted or at least weakened to a certain extent (Colao et al., 2020), which is otherwise one of the most important sources of enjoyment for teachers (Hargreaves, 2000).

1.4 Teachers' Digital Equipment and Skills

Under normal conditions, teachers must be flexible and imaginative when it comes to the preparation and selection of learning content (Klieme, 2020). Some learning formats that are usually used in in-person teaching were no longer possible due to the new and unfamiliar circumstances of distance teaching. Mixed forms of in-person and distance teaching, such as the use of self-produced explanatory videos for independent familiarization with new learning content, soon became increasingly important (Klieme, 2020.). As more evidence of the many possibilities of digital teaching became available (e.g., Saine, 2012; Preston et al., 2015; Chauhan, 2017; Shute and Rahimi, 2017), elementary school teachers had to become familiar with these teaching techniques and learning methods. However, the use of digital teaching methods was often contraindicated in elementary schools since there was a risk of overtaxing the students (e.g., Huber et al., 2020). Also, young students often did not have technical devices or digital skills required to participate in distance learning (e.g., Helm et al., 2021; Kundu and Bej, 2021).

Digitalization in schools gained significant prominence within the past years (König et al., 2020), but it has experienced a particularly clear upturn as a result of the COVID-19 crisis. During the period of the school closures in early 2020, teachers had to be provided with the appropriate technical equipment such as computers, laptops or cell phones in order to maintain a good quality of distance teaching (Tengler et al., 2020; Wu, 2021). Furthermore, it was considered advantageous if both the teachers and the learners had previous knowledge in the use of information and communication technologies (e.g., Bozkurt et al., 2020; Stenman and Pettersson, 2020; Tengler et al., 2020). As such, this development may have been especially challenging for those teachers who hhave been using traditional pedagogical tools. However, several studies indicate that even young teachers who are considered "digital natives" (Prensky, 2001) often do not possess extensive digital skills (König et al., 2020; Kundu and Bej, 2020, Kundu and Bej, 2021). In accordance with this assumption, numerous findings show that only a small number of teachers had prior knowledge in

digital education (e.g., Tengler et al., 2020; Helm et al., 2021; Wu, 2021).

A recent meta study by Helm et al. (2021), which took into account the results of 97 online surveys with a total of 255,955 participants (students, parents, teachers and school staff) conducted between March 2020 and November 2020, confirms that more than half of the teachers were unprepared or poorly prepared for homeschooling. The findings of the study by Klapproth et al. (2020) suggest that some teachers faced technological problems and therefore had great difficulty in ensuring the smooth operation of distance teaching. The great need for training in the use of digital teaching methods was also reflected in the study by Kundu and Bej (2021).

With regard to the technical equipment, the findings of Schober et al. (2020); see also Huber and Helm, 2020; Huber et al., 2020) show that the resources varied widely both at schools and in the teachers' homes. For example, Switzerland had significantly more and Germany significantly fewer technical resources than Austria. Moreover, governments were not prepared to provide resources for digital forms of teaching at the elementary school level (Helm et al., 2021). Many teachers criticized the fact that there was hardly any technical equipment at the schools and that using private devices was the only way to continue the lessons. Also, Klapproth et al. (2020) concluded that the lack of adequate hardware was considered one of the major obstacles faced by teachers during distance teaching. The findings of the study by Kundu and Bej (2020) suggest that technical difficulties, such as the sudden interruption of internet connection, often further aggravated the already challenging situation for teachers. Overall, the missing resources, time and support played a limiting role in the use of digital teaching and learning methods (Klapproth et al., 2020).

1.5 Aspects of Educational Policy

The school closures posed a major challenge for all actors and stakeholders in the field of education. Therefore, it was considered an important task of the political actors to provide school employees with all necessary information. However, as already mentioned, the insecurity regarding the state of affairs was considered a strong burden for teachers (Anderson et al., 2021). Teachers' lack of knowledge about what needs to be done and how distance learning will be implemented in the upcoming weeks and months was particularly addressed by Huber et al. (2020). Although the majority of the school staff felt that the guidelines passed on by the school authorities were helpful, around 34% stated that they had received too little information about further steps of action. Also, the results of the study by Kim and Asbury (2020) indicate that, shortly after the first school closures, the teachers interviewed felt strongly overwhelmed by the uncertainty of their situation. The teachers reported a lack of clear communication of important information from political leaders. The respondents expressed criticism on the non-involvement of teachers in school-related decisions during the pandemic (Kim and Asbury, 2020).

In conclusion, it appears that the vast majority of the teachers surveyed in the above-mentioned studies rated the communication of educational policy measures as poor. Therefore, much more government consultation and communication is desirable in order to eliminate uncertainties on the part of education institutions (Kim and Asbury, 2020). Since school closures can have negative long-term consequences, it is of the utmost importance that governments understand the problems faced by students, parents and, especially, teachers and principals. This knowledge will help to develop, if necessary, adapt and implement policies. In an OECD (2020b), the authors made recommendations on how teachers can be involved and supported in such situations. Most importantly, it was recommended that schools quickly adapt their teaching methods to distance teaching conditions. This would thus allow teachers to teach online when schools are closed. In France, for example, a network of local digital education advisors has been mobilized to help teachers transition from face-to-face to distance teaching. The network for digital education also offered school administrators online training courses on how to find and use available digital resources to practice. However, this could only succeed because all actors and stakeholders worked together (Vincent-Lancrin, 2020). Other countries such as the United Kingdom have made efforts to complement school resources and teacher efforts by providing high-quality online classes. In addition, in collaboration with teachers and education experts, they have adapted television programming to support home-schooled students (Van Lieshout, 2020).

2 THE PRESENT STUDY

To capture the teachers' perceptions of the pandemic-related challenges and to derive possible consequences for future educational policy and practice, a multi-method research in the sense of a combination of two qualitative data sets was carried out. Thus, the aim of this paper is to reveal the main challenges of distance teaching for elementary school teachers, who took part in the Inclusive Home Learning (INCL-LEA) project by Schwab and Lindner (2020a). The INCL-LEA study was conducted to learn from the experiences of teachers for future practice and to convert them into practical knowledge that can be implemented in school teaching in Austria. The following article tries to investigate the following research question:

- What main challenges did elementary school teachers in Austria perceive in the context of distance teaching due to COVID-19 during the first national school lockdown?

3 INCL-LEA PROJECT DESCRIPTION

In order to be able to deal with the research interest regarding the perceptions of Austrian elementary school teachers regarding their professional challenges due to distance learning, two different qualitative data sets from the INCL-LEA project were analyzed. The INCL-LEA study (see Schwab et al., 2020) was conducted to identify the effects of emergency school lockdowns in Austria. Besides teaching practices during distance teaching,

TABLE 1 | Characteristics of the interviewed teachers.

	Gender	School affiliation	Age	Teaching experience (years)
Teacher 1	Female	Regular school	49	27
Teacher 2	Male	Regular school (public)	49	4
Teacher 3	Male	Special needs school (public)	47	25
Teacher 4	Female	Regular school (public)	50	25
Teacher 5	Female	Regular school (public)	24	2
Teacher 6	Female	Regular school (public)	27	4
Teacher 7	Female	Regular school (private)	32	5
Teacher 8	Female	Special needs school	25	2

teachers', students' and parents' perceptions were assessed to get deeper insights into stakeholders' individual experience. The INCL-LEA project was developed following a mixed-method design that contains both quantitative and qualitative data collection procedures.

The data collection processes in the context of the INCL-LEA project included a quantitative online survey which 3,467 teachers from all over Austria took part in during the first school lockdown in Austria (April/May 2020) using LimeSurvey. The link to participate was distributed to school principals all over Austria via email. Further, 56 teachers were canvassed by applying the snowball method and interviewed during the same period. The interviews were conducted via Zoom and have been video-taped. The interviews lasted around 45–60 min and were transcribed.

3.1 Sample Description

In the study, only data from elementary school teachers were taken into account. Within the main quantitative sample of 3,467 Austrian teachers, 1,354 teachers worked in primary schools. Of these, only data from 803 teachers were included in the analysis, as this subsample answered all four open questions relevant to the present study. Most of the participants in the online study was female (92.7%). The average age of teachers was 44 years (M = 43.92; SD = 11.17), ranging from 22 to 64. The participating teachers had an average teaching experience of around 19 years (M = 19.07; SD = 11.98).

Of the 56, 12 interviews have been used for the analysis as these teachers are currently working within elementary education. Furthermore, for a better overview of the interviewed elementary school teachers who were included in the analysis, a table has been listed below with their most important characteristics, such as gender, if they work at a regular or special needs school, if they work at a private or public school and how long they have been teaching. Only the first eight interviewees (Teacher 1–8) listed in **Table 1** are relevant to this present study.

4 METHODS AND DATA

4.1 Online Survey

In the course of the INCL-LEA study, teachers filled out an online questionnaire including both quantitative and qualitative (open-ended) questions. Considering that the COVID-19 pandemic at this point was relatively new (first COVID-19 case in Austria was reported on February 25, 2020; see, e.g., Kreidl et al., 2020; the data collection started at the beginning of April 2020), this paper focuses on the teachers' subjectively answered open-ended questions in order to gain actual insight into the experience of the pedagogical professional and to open up the newly oriented phenomenon of homeschooling due to COVID-19. The teachers' perception of distance learning was measured using the following four (open-ended) questions:

1. What are the advantages and challenges of the current transition to home teaching?
2. What do you see as specific advantages as well as challenges for at-risk students (e.g., students with special needs, low-performing students, . . .) during home schooling?
3. What specific measures would be necessary to facilitate your work (especially at-risk students) during home teaching?
4. What else would you like to tell us?

These questions were at the end of a longer quantitative survey, including sociodemographic information and rating scales. In principle, answering these questions was voluntary and could be skipped in the course of answering the online questionnaire. To answer the research question, all four open-ended questions of the online questionnaire were considered, since it can be assumed that both implicit and explicit expressions regarding the professional challenges of teachers can be found within teachers' answers regarding all four open questions.

4.2 Interviews

The semi-structured interviews were carried out in collaboration with the SCHELLE study conducted at the University of Trier by Letzel et al. (2020). In the semi-structured interview, the interviewees were asked about three major topics: (a) homeschooling in general, (b) differentiation measures in homeschooling, and (c) evaluation and review of school performance.

In the first block of questions regarding *homeschooling in general*, among other things, the teachers were asked what experiences they had had with home schooling insofar (i.e., how the contact was with students, parents; what everyday school life in homeschooling looks like). They were also explicitly asked how the switch to digital teaching went and whether they had prior experience with using digital instruments for teaching, such as while studying. In the second block of questions regarding *differentiation measures in homeschooling*,

TABLE 2 | Categories qualitative dataset I.

Challenges for elementary school teachers	
Superordinate categories	**Sub-Categories**
Teaching during distance education	Instructional design
	Contact/communication with students
	Rapid changeover
	Assessment/feedback
	Finding teaching material
	No substitute for regular instruction
	Checking learning processes
	Transfer of knowledge
Technical equipment	Missing hardware but also lack of skills
Contact/support/communication parents/guardians	Lack of knowledge
Additional workload	Double burden work/private life
	Constant accessibility
Digital skills	Lack of skills (i.e., was not taught during studies)
At-risk students	Contact/accessibility
	Individual support
	Motivation
	Finding teaching material
	Checking learning processes
	Transfer of knowledge
Educational policy	

the interviewees reported on whether differentiation measures in homeschooling were possible. If it was possible, they were asked what form it took place in. In the last block of questions regarding *evaluation and review of school performance*, the teachers were asked how they control assignments and further tasks, assess them and give feedback. They were also invited to reflect on how they respond to the needs of students at risk (i.e., students with special educational needs or from socially disadvantaged families or with a lack of language skills).

4.3 Data Analysis

4.3.1 Analysis of Qualitative Dataset I

The teachers' responses to the four open-ended questions that were part of the quantitative survey of the INCL-LEA study (see **Section 4.1**) were analyzed using the MAXQDA software. In order to systematize the teachers' perceptions and to enable a comparison of code frequencies, the data were coded using a multi-level process. In a first step, an overview-like examination of the entire data was carried out. Subsequently, initial categories were formed in order to summarize key statements of individual teachers under specific terms. The subordinate category *challenges for elementary school teachers* as well as the categories *teaching during distance education*, *technical equipment*, *contact/support/communication parents/guardians*, *additional workload*, *digital skills*, *at-risk students* and *education policy* were created. In order to further specify the already defined categories, subcategories were formed in a next step, which in turn can be examined according to further subordinate categories (Froschauer and Lueger, 2003). Under *category teaching during distance education*, the categories *instructional design*, *contact/communication with students*, *rapid changeover*, *assessment/feedback*, *finding teaching material*, *no substitute for regular instruction*, *checking learning processes* and *transfer of knowledge* were developed. With regard to category *additional workload* the subcategories *double burden work/private life* and *constant accessibility* were formed. Finally, the following subcategories were added to category *at-risk students*: *contact/accessibility*, *individual support*, *motivation*, *finding teaching material*, *checking learning processes* and *transfer of knowledge*. After a second pass of open coding, those categories most frequently mentioned by the teachers surveyed were determined and structured according to their relative importance for the research question (Froschauer and Lueger, 2003). **Table 2** is a tabulation of the categories formed in the course of analyzing the qualitative data from the online survey.

4.3.2 Analysis of Qualitative Dataset II

The qualitative data from the interviews was also analyzed using a multi-level process and with the analysis software MAXQDA. In the INCL-LEA study, 56 qualitative interviews were conducted with teachers. First, these 56 interview transcripts were read through and evaluated using the topic analysis (Froschauer and Lueger, 2003), which resulted in a categorization. Second, in order to get an overview, the following categories were developed, which are based and adapted to the questions of the interview guide: *consideration of private circumstances and life situations of the students, perception of the students and parents regarding distance teaching, communication and interaction with students and parents, preparation time and extra work of teachers, general attitude and everyday life in homeschooling, first reaction of teachers when government declared lockdown, digital instruments taught in university and used in class, if teacher teaches in elementary school.* Third, the interviews were then assigned to these categories. In the further course of the analysis and categorization, the following selection of the twelve interviews resulted, which appeared suitable for a detailed and thoroughly analysis. For this paper, only eight

interviews (see **Section 4.2**) were evaluated in more detail and assigned to specific sub-categories in the joint analysis.

4.3.3 Synthesis of the Two Qualitative Datasets

The synthesis of the two qualitative data sets was carried out taking into account the triangulation of qualitative data sources formulated by Patton (1999). This research method can be characterized as a multimethod qualitative approach since it uses multiple forms of qualitative data. According to the author, this enables a comparison of the consistency of information obtained with different approaches in the context of qualitative methods. Therefore, an analysis of different teacher perspectives was conducted by comparing the information derived from the online survey with the information provided by those teachers who participated in the semi-structured interviews. The aim of triangulating two qualitative datasets is not to ensure a uniform result, but rather to uncover disparities and commonalities between different perspectives (Patton, 1999).

After the initial observation and individual analysis of the two data sets, a summary of the results and categories was created. In order to obtain similar results in the two qualitative data sets, the same categories that have been observed in both data sets were selected as main categories at the beginning of the joint analysis. Only those categories that were deemed relevant process were used for an in-depth analysis. Selected qualitative data were then analyzed in more detail and sub-categories were developed. The evaluation of both qualitative datasets (open answers to the online survey and guided interviews) was carried out using a topic analysis (Froschauer and Lueger, 2003). This evaluation method enables researchers to get an overview of the topics, core statements and the context of the research from a large amount of data. By reducing the text to the central questions, its dimensions and arguments can be analyzed and interpreted on a manifest level. This method is best suited for this sub-study, as the topic analysis in the narrower sense of qualitative research does not require exact transcriptions, since only the manifest content of what is said is conveyed.

In order not to influence the respective analysis process, the integration of the two qualitative datasets took place only in the course of the interpretation phase. As a result of the joint topic analysis, the authors created a system of categories ("topics") in which they assigned both the short statements (online-survey) and the interview quotes. The following paragraph presents the corresponding categories that the researchers found as common categories in both analyses and that are related to the most recent literature review. For a better overview, the results of the online survey are presented first and then supported by quotes from the semi-structured interviews. The original quotes are in German, but they have been translated by the authors of this present article.

5 RESULTS

Based on the results of both qualitative data, the following five main categories will be elaborated upon: *1) Personal contact with students; 2) workload and stress; 3) technical equipment; 4) digital skills; and 5) individual support for at-risk students.*

Regarding the number of coded text passages of the online survey, it appears that statements relating to *category 1* were by far named the most frequently (n = 115). Teachers also clearly expressed themselves with reference to those aspects that play a decisive role in *category 2* (n = 108). In addition, a large number of the teachers reported a lack of technical equipment (n = 87) as well as difficulties with digital skills (n = 43), in accordance with *categories 3* and *4*, respectively. Finally, some teachers (n = 26) said they faced difficulty in providing individual support to at-risk students, as per *category 5*.

The following section contains a detailed description of each of the main categories. Some answers from the online survey have been included, which are then supported with quotes from interviewed teachers in order to illustrate the selected topics.

5.1 Personal Contact With Students

Teachers stated that they had lost some of the most important elements of regular teaching due to the school closures, namely personal contact and direct interaction with students. The teachers pointed out that these relationships, which are a key element in elementary school, could only be experienced to a small extent during emergency distance teaching.

> "I love my job – I really do – but the personal contact with the kids, the social learning, I see that as my calling." (participant 164, female elementary school teacher, age: 41, teaching experience: 16 years)

Also, teachers reported that they suffered greatly from the lack of access to many students. Maintaining contact with students through their parents, which was the only form of communication for many teachers, was perceived as very stressful. In addition, teachers said that not knowing how their students were really feeling and whether they had difficulties with schoolwork made them worried. Therefore, the impossibility of responding to students' questions or problems immediately and without delay was named as a great difficulty.

> "I miss the personal, daily contact with the children. There is no substitute for the feedback and reactions of the children in order to be able to respond to their needs immediately." (participant 394, female elementary school teacher, age: 47, teaching experience: 17 years)

Several teachers even stated that some of their students could not be reached despite numerous attempts to establish contact, and towards whom teachers expressed great concern about maintaining their relationship.

Similar concerns were voiced by several other teachers interviewed, of which only a few quotes are shown below. For example, **teacher 1** in her 50s, who has taught for almost 30 years, described the situation as quite difficult. For her, the most pressing difficulty is the lack of immediate response and individual interaction with her students.

> "So really difficult, (. . .) this distance between us and the children. This doesn't normally happen in class with

elementary school children. You get a lot through the interaction, and so everything is delayed now. Of course, I offer that they can get in touch if they have any questions and so on, but that doesn't work so well. So, while it works during these online classes, with the whole class or part of the class, you can of course also do it in groups, and the children can respond, but it just stops after that. It's just a lot more difficult to get immediate feedback and to react quickly. Because the children want to know something at that very moment, and they are unable to reach me, of course they ask their parents first. This makes it more difficult."

Another teacher – named **teacher 2** here – perceived similar obstacles over the course of the lockdown. In contrast to Teacher 1, he was relatively new to the profession (started teaching 4 years ago) but has had similar feelings. The most difficult thing about the whole situation for him was the lack of contact, especially with at-risk students such as those from a migration background. In his opinion, distance teaching was a particularly negative experience for such students.

"In terms of my job, I don't like the situation at all. Well, elementary school teachers and homeschooling don't go together at all and that's where I need to make direct contact. I need the children in front of me and that's a very bad thing because online classes only work well with students from privileged backgrounds, albeit with exceptions, than students from socially vulnerable settings with a migration background. This is the biggest problem. So basically, I don't like it at all. Let me put it this way, I would forego this gained 'free time' if I could go to school normally and I'm glad that it will start again soon."

5.2 Workload and Stress

A large number of elementary school teachers reported a significant increase in their workload over the course of the school closings and the resulting emergency distance learning. Teachers stated that this increased workload was accompanied by an unprecedented mixture of work and living spaces. In particular, teachers who are also parents reported a double burden, as they had to live up to their role as committed teachers on the one hand and meet their parental responsibilities on the other.

"I am a single mom of a six-year-old child. I work for the school and take care of my child at the same time (also having to work on preschool tasks set by the KIGA for her child every day); this was a big challenge." (participant 164, female elementary school teacher, age: 41, teaching experience: 16 years)

"The double burden of taking care of my own children's homeschooling and taking care of my own class is very heavy one. Altogether, I experience it as very stressful!" (participant 163, female elementary school teacher, age: 37, teaching experience: 3 years)

In addition, many teachers stated that they had worked significantly more hours than before they began distance teaching. Some teachers even reported a 50–80-h work week.

"In the beginning, my work week was about 50 h. I also slept very poorly." (participant 503, female elementary school teacher, age: 50, teaching experience: 28 years)

In view of the extensive overtime and despite the difficult circumstances, the majority of the teachers made tireless efforts in order to ensure subject matter was as interesting and multifaceted as possible. The search for suitable teaching methods led to working hours that took on previously unimagined dimensions. The preparation for class, feedback for the students and the correction of completed tasks took a long time, as it was usually not possible for teachers to respond directly to student questions or to clear their doubts.

One of the few male elementary school teachers interviewed – **teacher 3** – said that he was particularly aware of the intertwining of private life and leisure time. Both students and teachers lost track of time due to the lockdown. Free time gave way to work, both becoming somehow connected and interwoven. This, in turn, led students to think the teachers were always available.

"I noticed that this leisure–work thing is extremely intertwined. That it is even less demarcated than it was before. Or it's well delimited otherwise! There is certainly less hourly intensity, but because of the delimitation, there are no boundaries. Class runs throughout the whole day. And the reaction of my own children was very interesting, "Can't you finally put your cell phone down, or can't you finally turn off this computer!" because they had the feeling that my attention was not with them. (. . .) And why do I have to keep checking my cell phone? And I tried to explain that this is my job that I am doing now. And that when my cell phone rings, I am not texting back and forth with a friend, but that it's part of my job. I then just showed it to them. But it is precisely in this dual role of a parent and a teacher that everything has run into one another and merged now. From early in the morning to late at night, somehow. That's for sure – even if I say that the bottom line is that the hourly workload is definitely less, it's also a way of saying it's exhausting. This [is] permanent. Yes, and then having your own children sit at home and feeling that they should be looked after, the students should be looked after, new learning material should be created, and feedback should be given. This-everything gets mixed up, which makes it tedious."

Teacher 4 had the same experience. She reported that, in her everyday life, being constantly available to the students all the time was exhausting in the long run.

"Well, I was always ready for the concerns of the children and parents. It starts at 6 a.m. with the first messages and ends around 11 p.m. every day. I must be

> constantly ready in addition to producing teaching materials and paying attention to students because a lot of personal things must simply be delivered continuously as everyone simply expects an immediate reaction. This is not only with the parents, but also the children, because most of them have cell phones or are allowed to use their parents' cell phones, and the children long to get in touch. It's extremely delightful, but not sustainable in the long run. It's very exhausting."

5.3 Technical Equipment

A large number of teachers reported the dearth of electronic devices. On the one hand, the lack of equipment in the schools was considered a major difficulty. For example, one teacher said that only three laptops were available for a total of 18 teachers in the school.

> "In elementary school, we are faced with the problem that the school is very poorly equipped in terms of IT. We have three computers for a staff of 18 teachers." (participant 1,127, female elementary school teacher, age: 59, teaching experience: 38 years)

On the other hand, teachers also stated that they had to purchase network devices because the school authorities did not provide them with any equipment. Many teachers assumed that their own acquisition of technical devices, which was considered a prerequisite for functional distance teaching, was taken for granted.

> "We constantly provide ourselves with private terminals and internet connections free of charge." (participant 5,027, female elementary school teacher, age: 54, teaching experience: 38 years)
>
> "The main challenge is the lack of digital equipment not only for students, but especially for teachers at the elementary level. All the teachers I know work from home with their private laptops and private smartphones." (participant 2,334, female elementary school teacher, age: 42, teaching experience: 23 years)

Thus, some elementary school teachers have had to raise funds to put digital teaching methods into practice. As a result, many teachers felt abandoned because the school authorities did not provide them with the appropriate technical equipment in good time.

Interestingly, in contrast to the open questions of the online survey, no indications were given in the qualitative partial study that the teachers had to purchase technical devices themselves.

5.4 Digital Skills

In addition to optimum technical requirements, digital knowledge was considered an important prerequisite for the successful implementation of distance teaching practices. In particular, the lack of support in setting up and acquiring the tools for digital teaching turned out to be a major obstacle for teachers. Some teachers reported that, due to the rapid transition to distance teaching and the lack of preparation, they had no knowledge of implementing virtual teaching methods. Moreover, several teachers claimed that the transition to distance teaching was especially challenging for their older colleagues as they generally have less experience with new technologies.

> "There was no time to adjust to it and learn how to deal with it, which was especially harder on my older colleagues." (participant 3,857, female elementary school teacher, age: 54, teaching experience: 24 years)

Many teachers stated that they had dealt intensively with digital forms of teaching during the school closures in order to be able to virtually deliver teaching content. Although most teachers had no difficulties with common communication tools such as e-mail, some were concerned about the correct use of other internet technologies such as video conferencing. Furthermore, several teachers reported that they had never dealt with digital teaching formats before.

> "The challenge is that many teachers (I'm one of them) don't have the special knowledge (of computers) and thus can't handle them that well. This stresses me out. Every week during video conferences, we hear "What else we are supposed to do and offer?" I don't even understand the basics." (participant 3,374, female elementary school teacher, age: 49, teaching experience: 27 years)

Overall, some teachers did not feel well prepared for distance teaching. Teachers stated that digital forms of instruction in elementary schools are hardly used or not used at all under normal conditions. The associated lack of experience and knowledge, according to the teachers, was the main reason that significant difficulties arose during distance learning. When asked whether teachers were prepared to use digital instruments in their studies, **teacher 5** said that she neither encountered nor used them before. It wasn't long ago that she graduated as she only has 2 years of work experience.

> "You can forget that, not at all. In no way. I mean, I have to say that, theoretically, we would have to visit this digital learning advanced training course. I haven't done that yet; I haven't gotten around to it yet. That didn't work out. If I had tried that, it might have made a little more sense, but basically, digital media, digital education was actually never an issue. Rather, teachers would say "By the way, you can do this and you could that" and there would be possibilities to change, but no. I don't think anyone expected something like this to be necessary 1 day. Which is actually questionable because anything can always happen."

Teacher 6, who also has little work experience, experienced the situation in a similar way to Teacher 5. She was overwhelmed by the whole situation and the transition, as she did not deal with digitization in education, i.e., the use of digital instruments, during her studies.

> "Actually, I wasn't prepared for this. I don't know, it wasn't that long ago for me now. I've been a teacher for 4 years and I was in afternoon care for 1 year. That means I just graduated 5 years ago and it wasn't really that much of an issue at that point. I can imagine that it is already a bit more of an issue in the curriculum, but nobody could have expected it to become so important 1 day. The value of digitalization has only come about in the last two to 3 years; this has now become even more important in the school sector. That's why I understand why I wasn't prepared because it wasn't that much of a topic until now, and especially in elementary schools. I think this was more of a topic in the changing middle school field. At the elementary school level, schools had dealt with it on a voluntary basis; but so far, it wasn't really mandatory."

5.5 Individual Support of At-Risk Students

Another key challenge for teachers was dealing with at-risk students (e.g., those with special educational needs, with autism spectrum disorder, of vulnerable socioeconomic status, with poor knowledge of German) during the school lockdowns. Most often the teachers mentioned facing obstacles in offering individualized distance learning to these students.

> "Supporting children with learning difficulties is a challenge." (participant 2,763, female elementary school teacher, age: 38, teaching experience: 17 years)

In addition, the teachers stated that it takes tremendous effort to motivate students at risk to undertake learning tasks. These children often do not receive the necessary support at home that they need to cope with the learning tasks.

> "It takes a great deal of personal effort to motivate at-risk students." (participant 4,710, female elementary school teacher, age: 61, teaching experience: 38 years)

From the teachers' point of view, giving increased support to pupils at risk turned out to be extremely time-consuming. It took a lot of dedication from the teachers to ensure that these students didn't fall behind.

Teacher 7, who works at a private school, mentioned that she became more aware of social divides in her class while distance teaching, especially with regard to at-risk students.

> "Because now you just notice (. . .) this social injustice even more. There are children who live in a sheltered home with five cell phones and three tablets and two laptops. They can choose what they want to use today. And they have parents who explain the tasks to them and siblings who practice with them. And everything is very idyllic, at least on the outside. Certainly, there will be difficulties too, but it's just a lot easier for them. And then there are children who may have a cell phone and use it, which they must share with their siblings who are also homeschooled, who have no parents, who have to take care of themselves, who have to motivate themselves. So, you notice that very much. Nobody is lost at school or in my class, but you can tell that a lot of children are physically there, but their attention is absent."

Teacher 8 has had the same experience. In contrast to the other teachers interviewed, she works as a team teacher at a school that teaches children with special educational needs. Teacher 8 said that distance teaching also affected parents, who not only looked after their children but also had to teach them.

> "We regularly hear from the parents that it is difficult to get them [their kids] to do something. Wherever we [as teachers] can only say yes, it is actually very, very difficult because that is also difficult for the children in the situation. They don't know what's going on either, because normally, they associate being at home with vacations. They have trouble understanding why there is such pressure and such a structural sequence all of a sudden. (. . .) Now that means, okay, then he didn't have to do anything for school from 8 to 11 in the morning for school. It's okay if you offer the children to split it up their time. As always, this is also reflected in their behavior, because everything that is done under pressure and coercion will not get the children any further. (. . .) [They must be told that this]is an exceptional situation, and you can learn differently this time."

6 DISCUSSION

During the COVID-19 pandemic, plenty of research have been conducted and already been published (e.g., recent literature overview by Helm et al., 2021). However, within the strict timeline, limited possibilities for preparing studies were available. Further, many published studies have a rather descriptive character and present rather superficial outcomes. Moreover, mixed-method approaches are missing and impede efforts to gain a deeper understanding of the situation. Therefore, the current paper aimed to combine data from a large nationwide online survey as well as data from interviews. The content focus was on elementary teachers' experience and perceptions towards emergency distance teaching during the first school lockdown due to the spread of COVID-19 in Austria.

The findings revealed that most participating elementary school teachers identified the missing face-to-face contact and direct exchange with students as a significant challenge. This is an

interesting result as previous research focused more on the importance of social contact among peers and less on the lack of contact between teachers and their students. In this context, the dependency of students on their teachers was still dealt with, rather than the other way round – the effects of COVID-19 on the social connection teachers feel with their students. Against this background, several studies pointed out the effects of teacher feedback on students (see, e.g., the meta-analysis of Wisniewski et al., 2020) and hardly observed the other side – teachers also seeking exchanges with their students. The result, however, is in line with a current trend in education: there was a shift from solely focusing on learning outcomes as an indicator of high-quality education to including aspects such as personal wellbeing (of students and teachers) and building social communities that provide a sense of social belonging. For instance, within the OECD Learning Framework 2030 (OECD, 2018), aspects such as attitudes and values are considered important for future education. Further, especially in situations of crisis, it is crucial to take social and emotional needs into account. Therefore, teachers may have viewed missing student contact as challenging having realized that they are unable to address students' individual needs in a sufficient manner. On the other hand, they may have also become aware that face-to-face contact is also a significant need for themselves and not solely for their students.

In line with several other studies all over the world (Kaden, 2020; Klapproth et al., 2020; Prado-Gascó et al., 2020; Tengler et al., 2020; Walker et al., 2020; Anderson et al., 2021), the current study pointed out that the unexpected and unplanned transition from regular teaching to distance teaching resulted in a significant increase in workload. On the one hand, teachers struggled with the challenges of the unexpected work-life balance (e.g., missing workspaces, missing equipment, childcare responsibilities for their own children also at home due to the closure of their schools). On the other hand, their job requirements changed dramatically.

Concerning the long-term effects of the high workload of teachers, programs focusing on the prevention of and intervention in stress factors and burnout have gained even more importance within the educational sector. Even before the spread of COVID-19 (which is still ongoing and still requires flexibility and higher engagement in teachers) and the associated changes and measures, there was a high burnout rate (Spenger et al., 2019) within this occupational group. Over the course of the pandemic, it has already been shown that parameters such as teacher job satisfaction decreased significantly while negative emotional experiences increased (see, e.g., Letzel et al., 2020). As such, appropriate measures are needed – independent of COVID-19 or other emergency situations – that prevent individual crises in teachers such as professional dissatisfaction or burnout while supporting and strengthening teachers in the development of a positive professional self-concept. In line with the latter, implications for practical improvements and educational policy need to be addressed. In this context, public visibility and appreciation of the teaching profession contributes not only to the enhancement of the profession itself, but also to individual development and professional self-confidence and self-concepts (Carlo et al., 2013).

Interesting results were found regarding challenges faced by teachers on a digital and technical level. Teachers criticize the fact that the mere provision of technical devices is not sufficient for high-quality distance teaching. Although the provision of hardware (laptops, tablets, etc.) and software for the main stakeholders within educational teaching and learning processes (especially teachers and individual students) is considered a basic condition for functioning distance teaching, opportunities for professional acquisition of digital competency for teachers are needed. This demand seems inevitable, as research on COVID-19 and teachers' digital competences shows that mature knowledge of teachers contributes significantly to the appropriate design of online lessons during distance teaching (König et al., 2020; Sánchez-Cruzado et al., 2021). But it is not only in the context of further potential school closures due to COVID-19 that the demand for teacher training seems to be of great importance. The ways in which social structures are shaping everyday life, as well as the participation goals that schools desire, require digital education. In future crises, multimedia education concepts should be derived and developed that can be incorporated into everyday school operation. What has been caused by a sudden and unavoidable shift from regular schooling to distance learning online opens up unimagined (social) possibilities for digital reorientation in the educational context of elementary school. This could be realized, for example, in school partnerships all over the world via digital exchanges through video calls since the technical equipment and its use in schools was necessitated almost everywhere during the last year. As such, the COVID-19 crisis might have started positive trends regarding digital socialization. Nevertheless, in the context of digital teaching and learning, it has to be noted that there is a pivotal difference between emergency distance teaching and intended, planned digital teaching and online learning.

Despite all adversities and challenges, with which teachers felt confronted during school closures and distance teaching, they had the opportunity to reflect on the strengths and weaknesses of their rehearsed and internalized pedagogical actions and approaches and develop a reoriented view on the needs of their students. The insight into the private life worlds of their students can furthermore help to create adequate learning situations during regular school operation and to define pedagogical orientation to the needs of students beyond the borders of the classroom.

Regarding the limitations of the current work, it must be stressed that the findings cannot be generalized. But even if the results are not considered representative, they do offer an insight into the life and work of a total of 803 elementary teachers in Austria. Furthermore, participation in the surveys was voluntary, therefore, more motivated teachers or teachers who felt a greater need to share their experience may have been more likely to take part. Within the online survey, the teachers were not contacted directly, but via their school principals. Therefore, the response rate is unclear as not every school principal might have forwarded the mail to their staff members. A further limitation of the study is

the consequences of the two data sets with different samples and sample sizes converging. Different sample sizes are inherent in the design, since quantitative and qualitative data are usually collected for different purposes: generalization and broad overviews or detailed in-depth description, respectively. Moreover, as in many research efforts during COVID-19, the results obtained cannot solely be considered a result of a changing learning environment. The crisis itself might have caused numerous other challenges, such as a lack of social contact in general, which further interfere with the remote teaching setting as well as intrapersonal challenges such as increased psychological stress. Finally, it would be beneficial if future studies included more mixed-method designs using triangulation because of the nature of the subject. In addition, studies comparing different emergency distance teaching and learning interventions would reveal national and international differences and similarities in education policy measures.

7 CONCLUSION

Against the background of the sudden unexpected change from the established classroom teaching to a completely new format of teaching and learning, the present research project was developed as a rapid scientific evaluation measure to give first insights into teachers' perception of challenges during distance teaching. Despite, or perhaps because of this rapid response, this paper provides rare insights into Austrian teachers' experience of the very initial phase of mandatory homeschooling. The results obtained thus not only reveal new challenges during the homeschooling phase, but also allow conclusions to be drawn about omissions or forgotten subject areas during ordinary teaching in a pre-pandemic period of schooling. The present study, which is considered a rapid response to the educational turnaround, allows for almost real-time reports right at the beginning of the pandemic, thus highlighting the force of change and challenges Austrian elementary teachers felt confronted with. This allows pre-pandemic failures to come to the force.

DATA AVAILABILITY STATEMENT

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

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Local school authority of Vienna. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

SS and K-TL designed the INCL-LEA study and supervised the data collection. RC drafted the abstract. FW drafted the introduction and results sections. Further, FW analysed the data of the online survey and RC supported within the data analyses of the interview. SS, K-TL and RC drafted parts of the method section. FW, K-TL and SS drafted parts of the discussion section. All authors revised the manuscript critically, contributed significantly to the article and approved the submitted version.

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