The Impact of COVID-19 Pandemic on Primary, Secondary, and K-12 Education: A Systematic Review

Georgios Lampropoulos iD
International Hellenic University & Hellenic Open University, Greece

Wilfried Admiraal iD
Oslo Metropolitan University, Norway

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Georgios Lampropoulos, Wilfried Admiraal

Article Info	Abstract
	The study aims to provide a cohesive overview and summary of the COVID-19 pandemic impact on primary education, secondary education, and K-12 education through an extensive literature review. The review focused on global educational stakeholders' perspectives, attitudes, sentiments, opinions, and experiences. This study includes and analyzes 205 articles published from January 2020 to December 2022. The scientific databases SCOPUS and Web of Science were used. Specifically, the 15 research questions to be addressed and the methodology are presented. An in-depth synthesis of the related studies is provided based on the educational level and educational stakeholders' type. The results of the data extracted from the articles (e.g., main findings, aims, focus group, research method, sample, measurement-research tools, etc.) are examined. The findings are summarized, discussed, and compared to those of previous review articles about online learning prior to the COVID-19 pandemic. Conclusive statements, implications, and future research directions are also provided.

Introduction

COVID-19 was declared as a pandemic on March 2020 by the World Health Organization (World Health Organization, 2020). It affected several domains including the educational one and resulted in unprecedented circumstances and difficulties. To overcome the new challenges, meet the new educational demands, and continue to provide education to students during such demanding times, the educational community as a whole had to make several adjustments and rapidly transition from traditional face-to-face learning to distance education (Abaci et al., 2020; Ferri et al., 2020). In addition, limitations and weaknesses of the existing educational system were revealed by the pandemic (Lee, 2022).

Even before the pandemic, the field of distance education was becoming more popular and was being implemented in different educational settings (Simonson et al., 2019). Distance education is a form of formal institution-based education where interactive telecommunication systems are utilized to connect teachers and learners who could be separated by both time and place and provide them with learning material and resources (Simonson & Schlosser, 2009). The integration of digital technologies and devices to support teaching and learning activities leads to the creation of online learning environments (Clark & Mayer, 2016). Online learning focuses on providing ubiquitous learning, the openness and accessibility of educational resources, students' engagement, and

communication among educational stakeholders (Hu & Li, 2017; Wallace, 2003). Although that online learning constitutes a significant factor of education globally, there still does not exist a single definition for it as based on the context and area of focus the definition can be differentiated (Singh & Thurman, 2019). Through this rapid transition to fully online learning, it is evident that the complete advantages, affordances, and potentials of online learning were not exploited (Hodges et al., 2020). The way online learning was integrated was characterized as a form of emergency remote teaching and learning as it was not planned or designed to be online from the beginning (Bond, 2020; Hodges et al., 2020). Emergency remote education can be defined as a rapid and short-term change to the way teaching and learning activities are held which involved hi-tech, low-tech, and no-tech solutions to ascertain the continuation of the educational process due to unprecedented circumstances during a global crisis (Ferri et al., 2020; Hodges et al., 2020).

Around the world different practices, approaches, and tools were used to facilitate the transition to online learning and address the new educational requirements. Therefore, numerous case studies have been conducted regarding the impact of COVID-19 on the educational domain and the daily lives of educational stakeholders. Yet, there has not been any study that offers a summary and an overview of the different studies that have been carried out since the beginning of the pandemic. Consequently, the aim of this study is to bridge this gap in the literature by providing a cohesive overview regarding the impact of COVID-19 on primary, secondary, and K-12 education based on global educational stakeholders' perspectives, attitudes, sentiments, opinions, and experiences through an extensive systematic literature review. Due to the scope of this study as well as the different educational levels and stakeholders, the following research questions (RQ) were set to guide the study:

- Primary education
    - RQ1: What are primary education teachers' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?
    - RQ2: What are primary education students' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?
    - RQ3: What are primary education parents' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?
    - RQ4: What are primary education administrators' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?
    - RQ5: What are primary education stakeholders' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?
- Secondary education
    - RQ6: What are secondary education teachers' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?
    - RQ7: What are secondary education students' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?
    - RQ8: What are secondary education parents' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?
    - RQ9: What are secondary education administrators' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?

    – RQ10: What are secondary education stakeholders' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?

- K-12 education
  - RQ11: What are K-12 education teachers' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?
  - RQ12: What are K-12 education students' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?
  - RQ13: What are K-12 education parents' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?
  - RQ14: What are K-12 education administrators' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?
  - RQ15: What are K-12 education stakeholders' perspectives, experiences, and attitudes regarding the impact of COVID-19 pandemic on education?

Method

To answer the aforementioned research questions and meet the aims of this study, the widely accepted and validated Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Page et al., 2021) was followed. SCOPUS and Web of Science (WoS) were selected as the scientific databases due to their high impact, accuracy, and relevance (Mongeon & Paul-Hus, 2015; Zhu & Liu, 2020) and their meeting the essential requirements to be used for evidence synthesis (Gusenbauer & Haddaway, 2020).

More specifically and with the aim of analyzing the perspectives, opinions, experiences, attitudes, and sentiments of the educational community regarding the effect of COVID-19 on education, the systematic literature review included articles from January 2020 to December 2022. Since K-12 education was selected as the educational level to be explored, the literature review involved studies regarding primary education, secondary education, or K-12 education. Hence, the following query which integrates logical operators and wildcards was used: "('primary' OR 'elementary' OR 'secondary' OR 'middle school' OR 'high school' OR 'k-12' OR 'k12') AND ('distance learning' OR 'remote learning' or 'online learning' or 'distance teaching' or 'remote teaching' or 'online teaching' or 'distance education' or 'remote education' or 'online education') AND ('perspective*' OR 'view*' OR 'attitude*' OR 'stance*' OR 'opinion*' OR 'stand*' OR 'sentiment*') AND ('covid' OR 'covid-19' OR 'pandemic' OR 'covid19')." In both SCOPUS and WoS, the search query was applied on the "topic" level, that is the title, abstract and keywords of the articles.

In total, 1088 articles were identified in the two databases (630 in SCOPUS and 459 in WoS). After removing the duplicate documents (364), 724 documents were screened. The document involving an empirical study about the perspectives, experiences, sentiments, attitudes, or opinions of students, parents, teachers, or administrators regarding the impact of COVID-19 on K-12 education was the main inclusion criterion. A total of 477 documents did not adhere to the necessary research criteria and were excluded. All 247 documents were retrieved. On the whole, 247 documents were examined for eligibility. Forty-two documents were excluded during the eligibility

assessment as they did not meet the research criteria. Consequently, 205 studies were included and analyzed in this review. The steps of the process are displayed in detail in Figure 1.
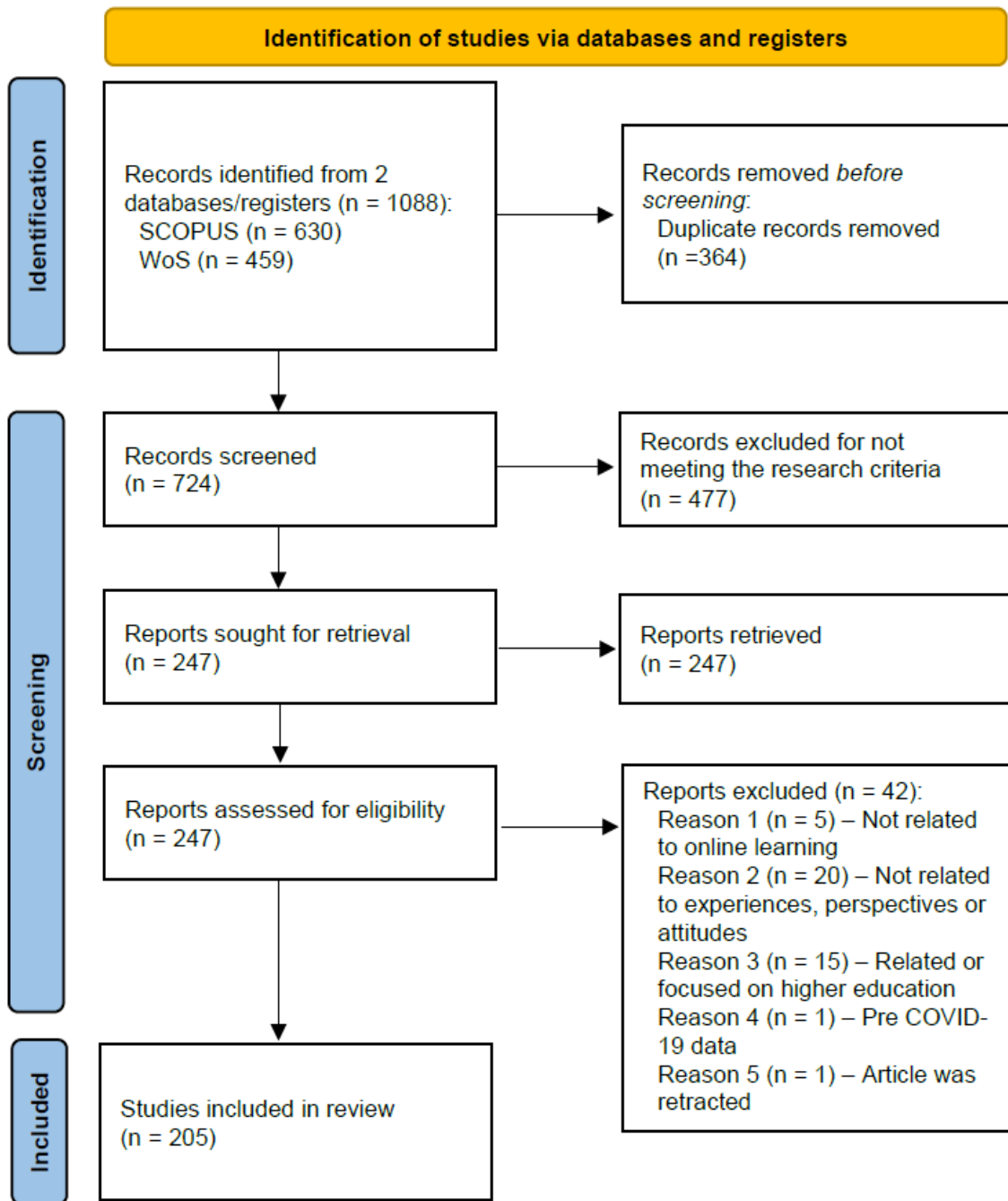

Figure 1. Prisma Flow Diagram

Results

Most studies across all educational levels were published in 2021 (freq. = 106, pct. = 51.71%). Out of the 205 studies analyzed, 74 (36.1%) concerned K-12 education, 68 (33.17%) secondary education, and 63 (30.73%) primary education. Figure 2 displays the annual distribution of the articles for each educational level.
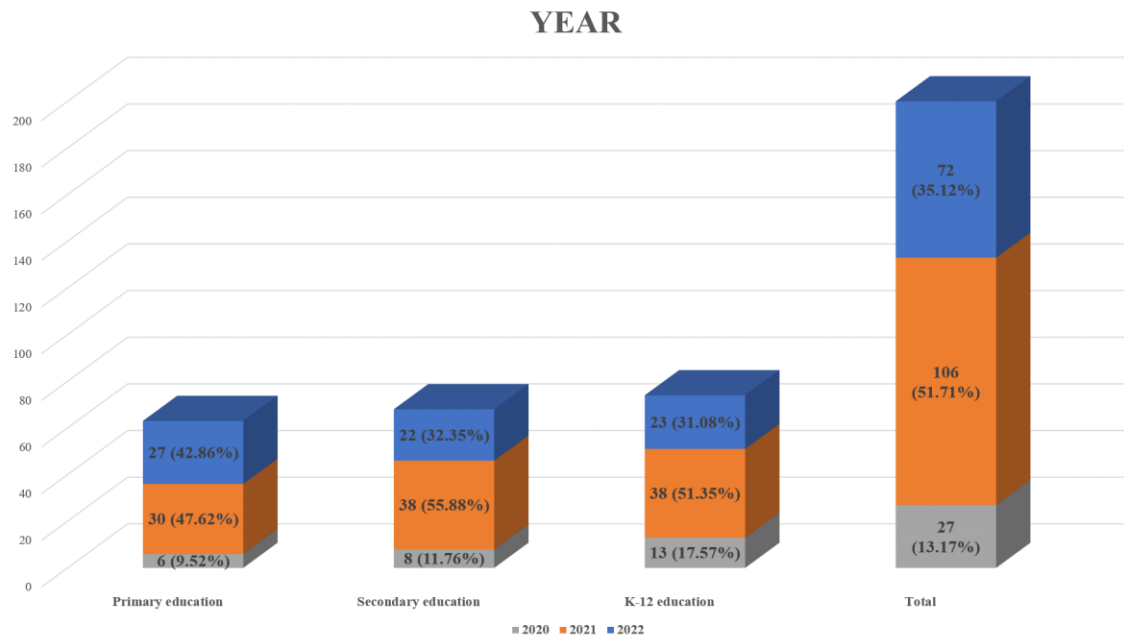
Figure 2. Year Distribution for Each Educational Level

The majority of studies involved teachers (freq. = 105, pct. = 51.2%), followed by students (freq. = 39, pct. = 19.02%), stakeholders (freq. = 32, pct. = 15.61%), and parents (freq. = 25, pct. = 12.20%). The term "stakeholders" refers to participants of various categories (e.g., teachers, students, parents, and/or administrators) whose perspectives were presented as a whole and not separately in the respective articles. As far as primary education is concerned, most studies focused on teacher, parent, and stakeholder perspectives while in secondary education the emphasis was on teacher, student, and stakeholder perspectives. The vast majority of studies involving K-12 education focused on teacher perspectives. Across all educational levels analyzed, the perspectives of administrators were the fewest (freq. = 4, pct. = 1.95%). The related data is displayed in Figure 3.

Figure 3. Focus Group Distribution for Each Educational Level

Quantitative methods were mostly adopted (freq. = 90, pct. = 43.90%), followed by qualitative (freq. = 69, pct. = 33.66%) methods. Studies that focused on primary education mostly used qualitative methods while the studies that emphasized secondary and K-12 education adopted mostly quantitative methods. Among all educational levels examined, mixed methods were the least used (freq. = 46, pct. = 22.44%). Figure 4 depicts the distribution of the articles for each educational level based on their focus group.

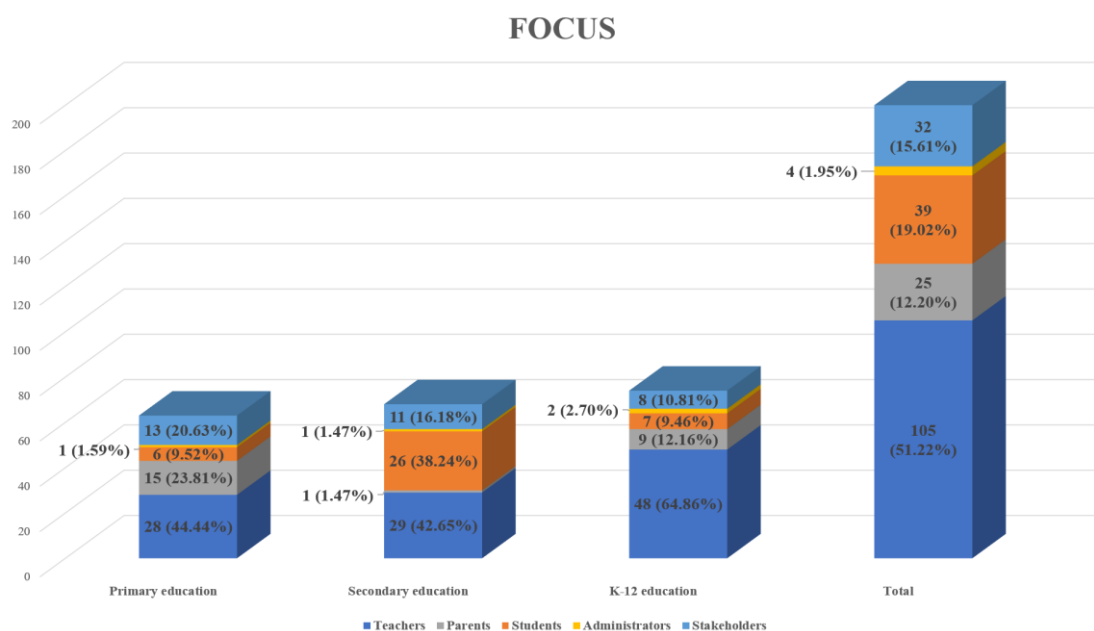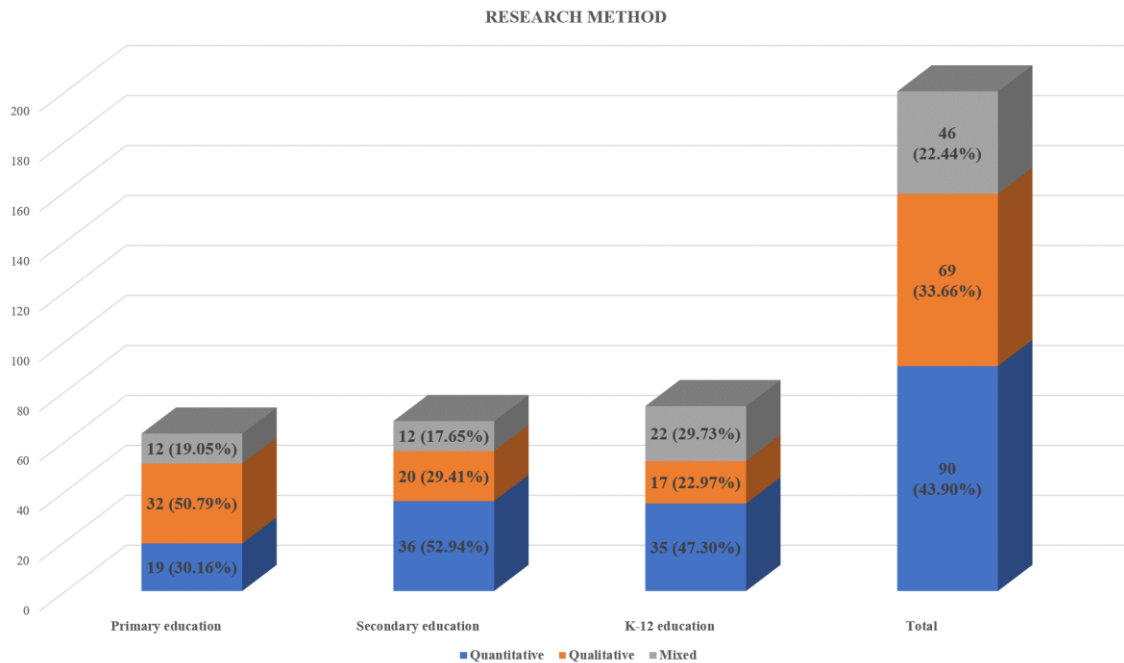Figure 4. Research Method Distribution for Each Educational Level

Of the 205 studies analyzed, 197 involved data from one country while the other 9 studies (Dias-Trindade et al., 2020; Drijvers et al., 2021; Howley, 2021; Ibáñez et al., 2022; Kirsch et al., 2021; Korcz et al., 2021; Leproni, 2021; Mihova et al., 2022; Thurm et al., 2022) included data from various countries. Each of the countries involved in the studies was taken into account. Therefore, the total number of countries reported were 230. In total, participants from 57 different countries (primary: 33, secondary: 32, and K-12: 45) were involved in the studies examined. The countries that published the most regarding primary education were Turkey (7), China (7), and Spain (5). The countries that carried out most studies related to secondary education were Indonesia (9), Italy (6), China (5), and Turkey (5). At the K-12 educational level, United States (12), Turkey (7), and China (6) were the countries that conducted the most studies. The top-5 countries that published most regarding this topic were Turkey (19), the United States (19), China (18), Italy (14), and Indonesia (11). The country distribution of the studies for each educational level is presented in detail in Figure 5.

To improve readability, the data extracted from the related articles is shown in three tables. Table 1 presents details regarding the year, country, educational level, focus group, and aims of the publications. The related to the research method, sample used, and measurement-research tools adopted information is presented in Table 2. Finally, the main findings and conclusions of each study analyzed are displayed in Table 3. Due to their length, Tables 1, 2, and 3 have been included in the Appendix.
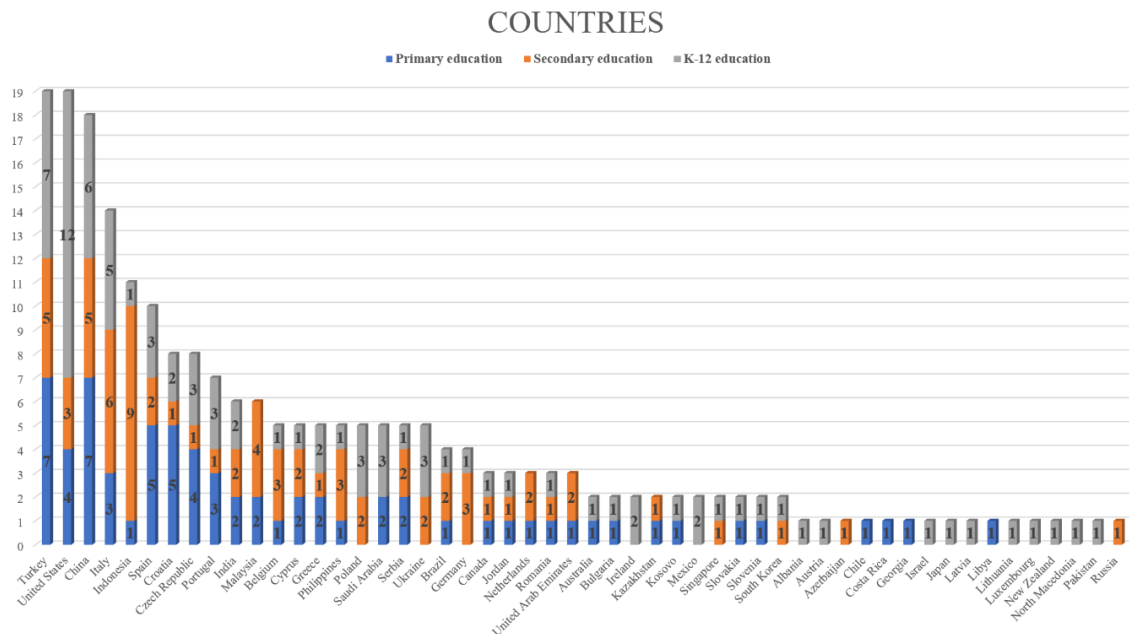
Figure 5. Countries Distribution for Each Educational Level

Main Findings Synthesis

Based on the analysis of the 205 articles included in this review, this section presents a summary and synthesis of their main results based on the RQs set. Particularly, the information is grouped according to the educational level (e.g., primary, secondary, and K-12 education) and the type of educational stakeholders (e.g., teachers, students, parents, administrators, and stakeholders). The results and outcomes are further elaborated and commented upon in the discussion section.

Primary Education

Primary Education Teachers' Perspectives

Despite teachers' initially expressing negative viewpoints regarding online learning, their feelings and opinions improved as they became familiar with it and integrating ICT in their practices (Anh, 2022; Nikolopoulou, 2022). Teachers' positive attitude toward online learning greatly affected their eagerness to provide high quality online lessons (Robinson et al., 2022), their teaching activities selection and performance (López-Estrada et al., 2022), their perceptions regarding their students' digital competence development (Lu & Han, 2022), and their ability to provide high quality education and actively engage their students (Avdiu, 2022; Friskawati et al., 2021). Despite this fact, teachers quoted that online learning is less effective (Izmagambetova et al., 2022; Petek, 2021; Svobodova et al., 2021) and drained them more physically and mentally (Petek, 2021; Robinson et al., 2022; Villa et al., 2022) in comparison to traditional face-to-face learning. Additionally, they are willing and ready to integrate the tools and strategies used during online learning in their classrooms (Ibáñez et al., 2022; Leproni, 2021; Ristivojevic, 2021).

Despite their lack of proper training, teachers tried their best to transition to distance learning (Leproni, 2021; Villa et al., 2022) and adapt their pedagogical practices and teaching strategies (Alghamdi & Al-Ghamdi, 2021; Ibáñez et al., 2022). Their successful transition to online learning was not only a result of their changed practices (López-Estrada et al., 2022) but also of the effort they put into communicating with parents and students and into creating, preparing, and sharing appropriate educational material (Anderson & Hira, 2020; F. Demir & Özdaş, 2020). Subjects that required students' physical involvement were mostly affected (D'Isanto & D'Elia, 2021). Students' readiness in combination with teachers' prior training to teach online, digital competences, as well as their experience affected teachers' attitude toward online learning (Friskawati et al., 2021) and their ability to carry out online lessons (Jothinathan et al., 2022; Petek, 2021). Younger teachers with less experience felt more confident in using ICT, were able to overcome the difficulties arisen in distance education more easily, and were more satisfied with their teaching competence (Lu & Han, 2022; Ristivojevic, 2021). Teachers highly regarded the crucial role both parents (Nikolopoulou, 2022) and students (Alghamdi & Al-Ghamdi, 2021; Russo et al., 2021) played, the challenges they had to overcome, and the effort they put into achieving effective online learning.

Teachers had to overcome several challenges and issues to provide high quality education. The lack of training, resources, and feedback was highlighted (Ayda et al., 2020; Nikolopoulou, 2022; Santos et al., 2021). Most studies reported technical issues, socio-economic disadvantages, and socioenvironmental limitations as the difficulties that teachers had to overcome by adapting their teaching practices (Demir & Özdaş, 2020; Faheina & Silva, 2022; Izmagambetova et al., 2022; Mutluer & Bavli, 2022; Ristivojevic, 2021; Singh et al., 2021; Svobodova et al., 2021). Problems caused by the lack of social interactions, infrastructure, resources planning, students' active participation and proper monitoring, as well as effective communication and collaboration with administration, parents, and students were also reported (Anh, 2022; Burleigh et al., 2022; Demir & Özdaş, 2020; Izmagambetova et al., 2022; Leproni, 2021; Petek, 2021; Russo et al., 2021; Santos et al., 2021; Svobodova et al., 2021).

Due to the lack of appropriate training, many teachers, at the cost of their own work-life balance, joined training and support programs and also tried to familiarize themselves with integrating ICT in their teaching to improve the education quality (Anderson & Hira, 2020; D'Isanto & D'Elia, 2021; Demir & Özdaş, 2020). As a result, their digital competences, self-efficacy, and self-confidence in using ICT increased (Burleigh et al., 2022; López-Estrada et al., 2022). Students' and teachers' digital competence cultivation, the creation of online material, and the development of new teaching and learning methods and approaches were highlighted as the main benefits of online learning (Nikolopoulou, 2022; Petek, 2021; Santos et al., 2021).

Based on teachers' perspectives, there is a clear need to provide teachers with appropriate technical support and training on how to effectively teach in online learning environments and increase their self-efficacy and abilities to use ICT to improve the quality of their teaching (Anh, 2022; D'Isanto & D'Elia, 2021; Gobbi et al., 2021; Izmagambetova et al., 2022; Lu & Han, 2022; Ristivojevic, 2021; Robinson et al., 2022). Additionally, the need to develop new teaching approaches that foster personalized learning (Ayda et al., 2020), reform the current curricula (Svobodova et al., 2021), provide engaging and interactive experiences (Liao et al., 2021), promote inclusive education (Jothinathan et al., 2022), and reduce the digital divide (Anh, 2022) was evident.

Primary Education Students' Perspectives

Students' perspectives regarding the effectiveness of online learning were mixed with studies presenting positive (Dedić & Jokić, 2021; Zheng et al., 2022), neutral (Çelík & Íşler, 2020; Rayhana & Al-Batayha, 2022), and negative attitudes (Stojkovic & Jelic, 2021). Factors such as students' gender (Rayhana & Al-Batayha, 2022), their parents' digital competencies (Dedić & Jokić, 2021), and students' ability to interact and communicate with their teachers (Zheng et al., 2022) were positively associated their satisfaction, preferences, and perceived effectiveness of online learning. Most students preferred face-to-face learning to online learning. Students being away from school, course material and technical difficulties (Çelík & Íşler, 2020), home conditions, lack of social interactions (Stojkovic & Jelic, 2021), classroom atmosphere (Zheng et al., 2022), and intrinsic learning motivation, deficiencies in self-regulated learning (Stojkovic & Jelic, 2021), decreased quality of education, and increased workload (Dedić & Jokić, 2021) emerged as the main drawbacks of online learning. The use of ICT to enrich educational activities and provide new means of communication were regarded as the positive aspects of online learning (Stojkovic & Jelic, 2021). Students highly valued teachers' and parents' efforts and their role in promoting students' engagement was evident (Lenka et al., 2021). The need for technical issues to be addressed, for educational approaches to be adapted, and for more effective evaluation methods to be developed was pointed out (Rayhana & Al-Batayha, 2022).

Primary Education Parents'-Caregivers' Perspectives

Parents had mixed feelings regarding the effectiveness of online learning (Lau & Lee, 2020). Some studies reported positive attitudes (Ivanković & Igić, 2021; Smetackova & Stech, 2021) as they regarded that educational and socio-economic benefits can be yielded (Alalwani, 2022), students' self-regulated learning and digital skills can be enhanced, and family relationships can be improved due to parents' more active involvement in their children's educational activities (Drvodelić & Domović, 2021). Others reported negative attitudes (Mihova et al., 2022) as they believed that students' learning motivation and wellbeing was unfavorably influenced (Samsen-Bronsveld et al., 2022). Their profile, work, socio-economic and cultural status, gender, educational level, and age significantly affected their use of ICT and their viewpoints toward online education as their ability to support their children was linked with these factors (Drvodelić et al., 2021; Ivanković & Igić, 2021; Manguilimotan et al., 2022; Smetackova & Stech, 2021).

Parents highly regarded the effort that teachers made during emergency remote education (Drvodelić et al., 2021) to integrate additional educational resources besides those specified by their school to improve students' experience (Polat & Kesik, 2022). Despite this fact and teachers' expectation of parents being as much involved in the educational process during online learning as they were in traditional learning, parents had difficulty in effectively supporting their children (Hagenaars et al., 2022). Some of the challenges that parents faced were technical issues, administrative and organizational problems, students' inadequate digital competencies, ineffective class management as well as lack of communication, knowledge, and resources (Alalwani, 2022; Karaman & Seferoğlu, 2022; Manguilimotan et al., 2022; Maras, 2021; Sánchez et al., 2021). Parents' employment status (Sánchez et al., 2021), home conditions, and students' learning motivation and lack of support

from schools (Drvodelić & Domović, 2021; Lau & Lee, 2020) further affected these challenges. Parents were particularly worried about the long hours that students spent on digital devices throughout the day (Alalwani, 2022; Lau & Lee, 2020). Nonetheless, parents used different approaches to encourage and motivate their children, provided them with feedback, prepared their learning environment, attended online classes, assisted them with their homework, and communicated with teachers (Karaman & Seferoğlu, 2022; Manguilimotan et al., 2022; Polat & Kesik, 2022; Šimková, 2021). The need to reduce the digital divide and ensure equal opportunities and access for all students (Ivanković & Igić, 2021; Sánchez et al., 2021), to receive more support and communication from schools, and to create blended learning environments (Lau & Lee, 2020) was highlighted.

Primary Education Administrators' Perspectives

According to Manĕnová et al. (2021), administrators highly valued teachers' efforts and were satisfied with the effectiveness of online learning. The main factors that affected the educational process were mostly related to organizational matters, digital competences, and teaching methods and approaches. To ensure the success of distance education, the development of stakeholders' digital competencies, teachers' training and pursuit to engage students, as well as adequate support from management are essential.

Primary Education Stakeholders' Perspectives

The COVID-19 pandemic exposed some limitations and weaknesses of the existing education system which became apparent during the rapid transition to online learning (Lee, 2022). To address the issues that emerged, the educational community worked as a whole (Bharaj & Singh, 2021) and the relationships among stakeholders grew tighter as all gained new knowledge, values, and skills (Lyu et al., 2020). The issues were related to the effect of COVID-19 and of the transition to online learning on parents and families, students' emotional and social state and academic performance, equity, and effective teaching and learning practices (Timmons et al., 2021).

Despite the benefits emergency remote teaching can yield (e.g., autonomy, flexibility), it is unfavorable for the development of students' socio-emotional skills (Martins et al., 2021). Hence, it was characterized as a not ideal approach but as something stakeholders had to accept and cope with at that moment (Silva & da Silva, 2021). Nonetheless, the efforts that administrators, teachers, and parents made were acknowledged and highly valued (Bharaj & Singh, 2021; Silva & da Silva, 2021; Timmons et al., 2022). Parents and students felt more stressed and expressed many concerns and wanted to return to traditional learning as they regarded it as a more effective educational process (Cui et al., 2021; Kantos et al., 2022). Particularly, despite the integration of ICT and multimedia greatly helping students (Zhao et al., 2021), distance learning resulted in decreased cognitive learning (Zhao et al., 2021), learning achievement, academic behavior (Klosky et al., 2022), and homework completion rate (Cui et al., 2021).

All stakeholders had to overcome difficulties associated with technical issues, inadequate digital competencies, ineffective time management, and lack of equipment (Klosky et al., 2022; Martins et al., 2021; Quintana & de León, 2022). Furthermore, lack of interactive lessons, feedback, social interactions, and communication, shorter

lesson duration, insufficient explanation of course material, and increased workload (Cui et al., 2021; Zhao et al., 2021) led to students' decreased learning motivations, active participation, and academic achievements (Kantos et al., 2022). Vulnerable groups had an even more difficult time adapting and addressing the challenges that arose (Klosky et al., 2022; Yüksel et al., 2021).

The significance of collaboration among stakeholders (Bharaj & Singh, 2021) and of eliminating the digital divide to provide equal opportunities and access to education was pointed out (Lee, 2022; Quintana & de León, 2022). Additionally, the need for developing novel student-centered approaches and strategies, reforming teaching and learning activities, providing appropriate training programs, and for support and guidance by administrators was highlighted (Martins et al., 2021; Timmons et al., 2022; Zhao et al., 2021). Finally, the need for educational institutions to offer safe and secure face-to-face learning during such demanding times and for effective strategic leadership practices was quoted (Klosky et al., 2022; Lee, 2022).

Secondary Education

Secondary Education Teachers' Perspectives

Teachers played a significant role in the effective conduct of online learning and they highly regarded parents' involvement (Centonze et al., 2021; Sumarsono et al., 2021). However, they were skeptical and questioned the viability, effectiveness, and sustainability of online education (Code et al., 2020; Velasco et al., 2021) and indicated that there were both merits and drawbacks for teachers and students (Arco, 2022). Teachers reported positive (Balaganesh et al., 2021; Daşdemir & Cengiz, 2022; Kundu & Bej, 2021; Nikolopoulou & Kousloglou, 2022; Watermeyer et al., 2021) and moderate (Samawi, 2021) perspectives regarding online learning and highlighted the potential of distance education as a means to enrich regular teaching activities (Jovanovic & Dimitrijevic, 2021). Some studies also reported negative feelings about it (Bozkurt & Peker, 2022). Nonetheless, they quoted that many of the choices made were not based on pedagogical concerns but on economic ambitions and a utilitarian logic (Watermeyer et al., 2021) which led to it being an inefficient method of teaching in cases where the challenges and barriers were not addressed (Bozkurt & Peker, 2022).

Teachers' transition to online learning was facilitated by the continuous support of schools and administrators and their intense effort to increase communication among stakeholders (Daşdemir & Cengiz, 2022; Dias-Trindade et al., 2020; Kuzembayeva et al., 2022). Nonetheless, some studies reported the lack of administrative and school support and of a clear vision toward online learning (Jovanovic & Dimitrijevic, 2021; Nikolopoulou & Kousloglou, 2022). Teachers' development of digital competencies, their increased self-confidence in using ICT, and their willingness to integrate new technologies in their classrooms emerged as the main benefits of teaching in online environments (Chen, 2021; Drijvers et al., 2021).

Although most teachers experienced different levels of anxiety, depression, and stress and they had insufficient knowledge and training regarding the integration and use of ICT in educational contexts, they had the required self-efficacy, willingness, and determination to provide high quality teaching (Balaganesh et al., 2021; Chen, 2021; Kundu & Bej, 2021; Lie et al., 2020; Wong et al., 2021). Their ability to effectively transition to online

learning and offer high quality teaching was influenced by and associated with various factors, such as: digital literacy, pedagogical knowledge, and self-efficacy (Babic et al., 2020; Lie et al., 2020), leadership, teamwork, and planning skills (Samawi, 2021), prior experiences (Jovanovic & Dimitrijevic, 2021; Lie et al., 2020; Nikolopoulou & Kousloglou, 2022), support received (Drijvers et al., 2021; Lie et al., 2020), students themselves (Lie et al., 2020; Sumarsono et al., 2021), psychological status (Wong et al., 2021), perspectives (Balaganesh et al., 2021), beliefs and educational policies (Drijvers et al., 2021), and gender (Nikolopoulou & Kousloglou, 2022). The need for teachers to adapt their existing teaching philosophy as well as for effective training programs to be developed so that teachers could cultivate their digital competences, improve their online learning practices, and reform their teaching methods was highlighted (Chen, 2021; Chua & Bong, 2022; Dias-Trindade et al., 2020; Ober et al., 2022; Uysal & Kıvanç Çağanağa, 2022).

Moreover, teachers quoted that the integration of ICT was not effective enough (Ivaniuk & Ovcharuk, 2021), they were concerned about the assessment and communication methods used (Ober et al., 2022), and that although novel technologies that could support and facilitate their effort existed, these were not available to them (Chen, 2021). This fact, in combination with their preference to use premade educational material (Aslan et al., 2021), decreased teachers' ability to design and create educational material and specific learning activities (Centonze et al., 2021) and to offer more active and engaging learning experiences which, in turn, affected students' motivation, interest, performance, and involvement negatively (Bozkurt & Peker, 2022; Centonze et al., 2021; Code et al., 2020; Çakmak & Kaçar, 2021). Teachers also regarded that online learning in comparison to face-to-face learning led to tight time schedules, insufficient course lengths, decreased social interactions and increased work overload and emotional stress (Aslan et al., 2021; Centonze et al., 2021; Ivaniuk & Ovcharuk, 2021; López-Fernández et al., 2021). Nevertheless, in some cases, teachers' effort to provide high quality lessons and to promote students' critical thinking and creativity resulted in students showing increased eagerness and motivation to participate in online learning (Kuzembayeva et al., 2022). Teachers also indicated problems related to organization and planning, curriculum reformation, approaches used, online class management as well as technical difficulties, Internet connection, and lack of appropriate digital equipment (Centonze et al., 2021; Çakmak & Kaçar, 2021; Ivaniuk & Ovcharuk, 2021; López-Fernández et al., 2021; Uysal & Kıvanç Çağanağa, 2022; Velasco et al., 2021). The lack of effective evaluation tools (Jovanovic & Dimitrijevic, 2021) was highlighted in particular as it diminished teachers' ability to assess and determine the degree of student comprehension (Daşdemir & Cengiz, 2022), their academic performance (Aslan et al., 2021), and their scholastic commitment (Centonze et al., 2021). Most teachers carried out only cognitive evaluations and did not assess students' practical skills (Purnomo et al., 2021) and applied mostly teacher-centered activities which made it difficult for them to achieve affective and psychomotor objectives (Aslan et al., 2021). As a result, the need for more effective tools and evaluation methods that take students' characteristics into account (Sumarsono et al., 2021) should be developed to manage lessons, communicate (Chen, 2021), and assess students throughout all development areas was pointed out (Purnomo et al., 2021).

Another major challenge that teachers pointed out and had to address was the increase in digital divide and educational inequalities (Chua & Bong, 2022; Code et al., 2020; Dias-Trindade et al., 2020; Lie et al., 2020; López-Fernández et al., 2021; Moldavan et al., 2021). Students' inequitable access to the necessary technological

equipment (López-Fernández et al., 2021) and lack of material and resources (Code et al., 2020) as well as teachers' unpreparedness to offer inclusive education in online learning environments (Chua & Bong, 2022) resulted in the amplification of digital divide and educational inequalities (Lie et al., 2020; Moldavan et al., 2021). Therefore, the significance of pedagogical relationships and well organized and strategically planned access schemes (Dias-Trindade et al., 2020) to provide equity-oriented technology integration (Moldavan et al., 2021) and to pursue and support inclusion and equity (Dias-Trindade et al., 2020) is evident. Social media platforms were used to promote social inclusion and facilitate communication and instruction dissemination which assisted students' learning (Arco, 2022; Nikolopoulou & Kousloglou, 2022). Finally, teachers highlighted the need for blended learning environments (Uysal & Kıvanç Çağanağa, 2022) that create conditions that benefit both students and teachers (Ivaniuk & Ovcharuk, 2021), promote inclusive education, and provide effective, unhindered, and unbiased education even under unprecedented circumstances (Watermeyer et al., 2021).

Secondary Education Students' Perspectives

Students characterized school closure during COVID-19 as an unhealthy and unusual event (Aslan et al., 2022). Most secondary education students had a positive toward and were satisfied with online learning (Belousova et al., 2022; Kaličanin et al., 2021; Li et al., 2022; Tangonan, 2022) with some also expressing mixed feelings about it (Almarashdi & Jarrah, 2021; H. Aslan et al., 2022; Ringer & Kreitz-Sandberg, 2022; Seynhaeve et al., 2022). Despite this fact, students assessed that traditional face-to-face learning cannot be replaced by online learning as it is a more effective, interactive, and sociable process (Belousova et al., 2022; Iskandarova et al., 2022; Kaličanin et al., 2021; Kochan, 2021; Li et al., 2022; Ma et al., 2021; Sofianidis et al., 2021). Several factors influenced students' online learning experiences and academic achievement. These factors involved students' age, gender, and grade (Z.-R. Ma et al., 2021; Tangonan, 2022), their living conditions, residential background (Ma et al., 2021; Sofianidis et al., 2021; Züchner & Jäkel, 2021), ability to attend online classes (Surianshah, 2021), use of different educational material and sources (Iskandarova et al., 2022), and social interactions (Seynhaeve et al., 2022). Additionally, their digital competencies and feedback received (Züchner & Jäkel, 2021), their learning motivation and critical thinking (An et al., 2022), their teachers' digital competences (Sofianidis et al., 2021) and enthusiasm (Iskandarova et al., 2022), school and curriculum (Mailizar et al., 2020), as well as the platforms used (Prasetyo et al., 2021) also affected them. Their performance and overall experiences were also impacted by their attitudes toward online learning, learning motivation, their self-regulated studying (Lee et al., 2021; Züchner & Jäkel, 2021), as well as organizational, relational, and individual factors (Ferraro et al., 2020; Li et al., 2022).

Online learning allowed students to experience a more flexible and autonomous way of learning (Kochan, 2021; Tzankova et al., 2022) which did not hinder their learning motivation (Belousova et al., 2022) as most had access to the required equipment and tools, were familiar with and accustomed to online learning, and willing to actively participate (Mabrur et al., 2021). Despite this fact, students' daily routines and structure drastically changed (Ringer & Kreitz-Sandberg, 2022) and as a result, they experienced positive and negative emotions (Aslan et al., 2022) and post-traumatic stress disorder symptoms which were more intense for students that were preparing for their college entrance exams (Ma et al., 2021). Cognitive overload, social isolation, inhibited relationships with peers and teachers, increased workload and stress, and long time spent on digital devices were aspects that greatly

affected students (Almarashdi & Jarrah, 2021; Annamalai, 2021; Iskandarova et al., 2022; Kochan, 2021; Tzankova et al., 2022; Xu, 2021). To overcome isolation and to interact with peers and teachers, most students used social media platforms which further increased their screen time (Ferraro et al., 2020). Other challenges that students encountered involved technical difficulties, poor Internet connection, and lack of technical support and equipment (Harefa & Sihombing, 2022; Iskandarova et al., 2022; Simonova et al., 2021; Sofianidis et al., 2021). Students also experienced issues related to lack of focus, motivation, and supervision (Tzankova et al., 2022; Xu, 2021), difficulty in time management (Simonova et al., 2021), repository-based teaching (Annamalai, 2021), and impersonal study atmosphere (Xu, 2021). In addition, students faced limitations due to their limited digital literacy (Simonova et al., 2021), teachers' insufficient digital skills and lack of training (Kaličanin et al., 2021), constant comparison among classmate performances, as well as lack of encouragement, deep discussions, and group organization (Ringer & Kreitz-Sandberg, 2022).

Students highlighted the need for educators and educational policymakers to reevaluate their practices to accommodate student needs (Harefa & Sihombing, 2022), promote communication and interactions among peers (An et al., 2022), and to give voice to students and take their viewpoints into consideration (Sofianidis et al., 2021) when assessing and addressing the limitations and challenges of online learning to increase its effectiveness (Mabrur et al., 2021). They put emphasis on the necessity for policymakers and governments to find effective strategic interventions to address the digital divide and provide equal opportunities to education (Surianshah, 2021). Students also quoted the significance of promoting collaborative learning (Tzankova et al., 2022), cultivating student self-motivated learning habits (Lee et al., 2021), providing appropriate training programs (Simonova et al., 2021), enhancing social interactions and communication with teachers and providing individual feedback during online learning (Ferraro et al., 2020; Züchner & Jäkel, 2021). Finally, students emphasized the need for more interactive learning experiences (Annamalai, 2021) and the integration of blended learning activities as they can increase their interest, engagement, and performance compared to solely distance learning (Jiang et al., 2021).

Secondary Education Parents'-Caregivers' Perspectives

Based on Widiasih et al. (2022), besides students' wellbeing and academic performance, parents were concerned about their children's online behavior, internet addiction, and screen time spent. Parents were worried that the online learning negatively impacted teaching quality and hindered students' cognitive development. Finally, they highlighted the need for training programs that teach students proper online behavior and practices to be developed and for new teaching strategies that take students' needs into consideration to be created.

Secondary Education Administrators' Perspectives

The study of Hadriana et al. (2021) was the only one that solely involved the perspectives of secondary education administrators. Administrators put emphasis on continuous planning, organizing, and monitoring to effectively manage online learning. Based on their results, the administrators' management was deemed efficient.

Secondary Education Stakeholders' Perspectives

Pre-existing digital competencies and close collaboration and communication within the school communities facilitated the sudden transition to online learning (Manca & Delfino, 2021). Although the preference for face-to-face learning was clear, online learning was positively viewed as an effective and sustainable learning approach during emergency situations (Alarabi et al., 2022; Ionescu et al., 2020; Thurm et al., 2022). Although no significant statistic differences were observed regarding the learning efficiency in online learning in comparison to face-to-face learning (Volodymyrovych et al., 2021) and students' satisfaction with the quality of education they received during the pandemic (Cadamuro et al., 2021; Thurm et al., 2022), they sought for more interactive lessons and preferred face-to-face learning (Jamiludin & Darnawati, 2022). Students felt more comfortable learning in classrooms where they can interact with their peers and teachers and preferred teachers using diverse teaching methods and promoting an active learning environment (Jamiludin & Darnawati, 2022). Therefore, despite the financial cost, logistics, and physical discomfort, stakeholders were favorable toward more frequent tests as it would allow them to return to face-to-face learning sooner (Unger et al., 2021).

Although online learning was deemed convenient and flexible (Volodymyrovych et al., 2021), several challenges arose. Insufficient digital competencies, digital equipment inequalities, technical issues, Internet connectivity (Almeida et al., 2021; Babinčáková & Bernard, 2020; Jamiludin & Darnawati, 2022; Miguel et al., 2021), as well as excessive content and tasks, fast pace of teaching and a lack of social interactions, communication, feedback, and experimental activities (Almeida et al., 2021; Babinčáková & Bernard, 2020; Thurm et al., 2022) were the issues mostly experienced by stakeholders. The ineffective or not prompt resolution of these issues resulted in a decrease in students' attendance and participation (Almeida et al., 2021), self-regulated studying, and cultivation of social competencies and practical skills (Volodymyrovych et al., 2021). These problems were further aggravated when immigrant students were involved (Manca & Delfino, 2021).

Some differences were observed regarding the adoption of online learning in terms of technological context and attitudes between public and private schools (Alarabi et al., 2022; Almeida et al., 2021). Nonetheless, in both cases, teachers were well-prepared (Babinčáková & Bernard, 2020), had a high level of self-efficacy and meta-cognitive competence (Cadamuro et al., 2021), and used various means, multimedia, and different approaches to address and resolve problems related to online learning (Alarabi et al., 2022; Miguel et al., 2021). Simultaneously, parents provided students with material and emotional support and actively communicated with teachers and schools (Miguel et al., 2021). The effort of both parents and teachers was highly valued by students (Miguel et al., 2021). Finally, the stakeholders highlighted the need for collaboration among education stakeholders, constant student behavior and performance monitoring (Ionescu et al., 2020), adequate training, and promotion of self-efficacy and positive ICT beliefs (Cadamuro et al., 2021).

K-12 Education

K-12 Education Teachers' Perspectives

Based on K-12 teachers' perspectives, emergency remote teaching revealed both weaknesses and strengths of the

existing education system (Usca et al., 2021) and influenced the curricula, strategies, methods, platforms, training programs, and students' behavior both positively and negatively (Eadens et al., 2022). Hence, the COVID-19 pandemic was characterized as a turning point for the integration of ICT in education (Jimoyiannis et al., 2021). Despite teachers' concerns regarding the transition to emergency remote teaching and learning and the challenges that they had to overcome, most teachers viewed the change positively, adapted their practices, and were proactive in finding effective strategies to provide high quality teaching (Albano et al., 2021; Alper, 2020; Guzzo et al., 2022; Junaidi et al., 2022; Seabra, Teixeira, et al., 2021; Štibi et al., 2021) but at a cost of their personal mental health and wellness (Khanna & Kareem, 2021). Although the difference in teachers' involvement, experiences, knowledge, and environment led to them having different viewpoints of online learning (Eadens et al., 2022; Korcz et al., 2021; Schuck et al., 2021), most studies reported positive perspectives and attitudes toward online learning (Budnyk et al., 2021; Fujita et al., 2021; Hysaj, 2021; Kanibolotska et al., 2022; Kosmas et al., 2022; Seabra, Teixeira, et al., 2021; Wang et al., 2020) while few studies reported mixed (Panadero et al., 2022; Weltrowska et al., 2022) or negative (Kim et al., 2021; Maydiantoro et al., 2022) perspectives. Nonetheless, the effectiveness of and preference for face-to-face learning over online learning was evident (Bautista Jr et al., 2022; Kim et al., 2021).

Teachers' attitudes and experiences of distance learning were affected by their level of education and working environment (Duzgun, 2022; Reynolds et al., 2022), their perceived level of preparedness to teach remotely (Eadens et al., 2022), their working self-efficacy (Faccia et al., 2021), their beliefs regarding the ease of use and usefulness of online learning (Gokuladas & Baby Sam, 2020), and their behavioral intentions to use online platforms (Songkram & Osuwan, 2022). Additionally, their personal characteristics, personality, and emotions affected the quality of their teaching (Demir et al., 2021; Mikušková & Verešová, 2020; Ozamiz-Etxebarria et al., 2021), the practices and strategies they adopted (Faccia et al., 2021), and the degree of anxiety and stress they felt (Duroisin et al., 2021; Leech et al., 2022) but did not influence their attitudes toward online formative assessments (İlhan et al., 2022). Teachers quoted that a determining factor that impacted their teaching and viewpoints was the digital divide and the inequalities in educational opportunities (Albó et al., 2020).

Although teachers questioned the accuracy and effectiveness of online learning, they identified several advantages of it and believed that it can provide new learning opportunities and yield positive outcomes (Al-Bargi, 2022). Therefore and despite teachers' increase of negative emotions due to the pandemic, they took the transition to online teaching and learning seriously, were willing to adapt their practices, and put their efforts into providing quality teaching and meeting students requirements which led to their knowledge and instructional skills (Eadens et al., 2022; Mikušková & Verešová, 2020), digital competencies (Reynolds et al., 2022; Usca et al., 2021) and their self-efficacy and self-confidence in using ICT being improved (Kanibolotska et al., 2022; Songkram & Osuwan, 2022). Teachers put extra effort into creating online environments that are close to face-to-face ones (Babosová et al., 2022), were more flexible, changed their assessment criteria and methods, adopted new practices, used various platforms and digital resources to increase students' learning motivation, attention, and engagement, improve student-teacher interactions, communication, and relationship, and reduce negative behaviors (Jogezai et al., 2021; Panadero et al., 2022; Pocinho et al., 2020; Tay et al., 2021). They highly regarded digital competencies cultivation and saving time and money (Weltrowska et al., 2022) as well as being able to teach at a faster pace

with students being more attentive (Alper, 2020). Teachers highly valued the facilitation of resource delivery and management and of assignment collection and grading (Wang et al., 2020) as well as the flexibility and ubiquitous learning opportunities that distance education brings and stated that they would incorporate some of its didactic strategies to enrich and complement their face-to-face lessons (Guzzo et al., 2022; Kosmas et al., 2022).

However, teachers' ability to carry out effective lessons and their attitude toward online learning was impacted by the challenges that they had to overcome (Kosmas et al., 2022). The existing practices and inflexible structure of the curricula and assessments made it more difficult for teachers to adapt their practices while transitioning to online learning (Demir et al., 2021; Howley, 2021; Leech et al., 2022; Maydiantoro et al., 2022). The lack of face-to-face social interactions and support, decrease in physical activities, long time spent on digital screens, inadequate equipment (Alper, 2020; An et al., 2021; Howley, 2021; Leech et al., 2022; Weltrowska et al., 2022) and teachers' working conditions, increased workload, and enhanced physical and mental demands (Seabra, Teixeira, et al., 2021; Senft et al., 2022; Štibi et al., 2021) emerged as challenges. Technical issues and teacher limited technical skills and knowledge to integrate ICT in their teaching, teaching conditions as well as lack of proper training, resources, and equipment were some additional issues and limitations (Alfaro et al., 2020; Bautista Jr et al., 2022; Budnyk et al., 2021; Fujita et al., 2021; Junaidi et al., 2022; Khanna & Kareem, 2021; Kim et al., 2021; Korcz et al., 2021; Pocinho et al., 2020; Štibi et al., 2021; Tay et al., 2021). Despite this fact, in some cases, teachers were competent in integrating technology in their educational activities (Ladendorf et al., 2021) as they had undergone specific professional training and development (Moorhouse & Wong, 2021) and had already had the required equipment (Pocinho et al., 2020), they considered themselves to be better prepared than both their students and institutes to transition to online learning (Kiss et al., 2021). Occasionally, parents' involvement and intervention led to increased challenges that teachers had to overcome (Junaidi et al., 2022; Seabra, Teixeira, et al., 2021). When not effectively addressing the challenges and issues, teachers noticed a reduction in students' learning motivation, engagement, active involvement, self-efficacy, concentration, and performance (An et al., 2021; Hysaj, 2021; Senft et al., 2022) which was more profound in students of young age (Kiss et al., 2021; Kosmas et al., 2022). This fact led to them believing that students learn less in online learning environments and academic dishonesty occurs more easily and often (Al-Bargi, 2022; Bautista Jr et al., 2022). Teachers also highlighted the educational inequalities that arose and the potential long term societal level implications that might occur (Duroisin et al., 2021; Howley, 2021; Reynolds et al., 2022). Many teachers.

Furthermore, teachers highlighted the need for more support, continuous training, investment in teachers' professional development, and changes at institutional, municipal, and national level (An et al., 2021; Budnyk et al., 2021; Howley, 2021; Jimoyiannis et al., 2021; Junaidi et al., 2022; Khanna & Kareem, 2021; Korcz et al., 2021; Kosmas et al., 2022; Ladendorf et al., 2021; Mikušková & Verešová, 2020; Seabra, Teixeira, et al., 2021; Usca et al., 2021). The significance of mutual understanding and cooperation, frequent and personalized feedback, and socio-emotional and mental health support for both teachers and students was evident (Ozamiz-Etxebarria et al., 2021; Panadero et al., 2022; Schuck et al., 2021). Teachers' viewpoints about the school of the future changed (Albano et al., 2021) and they believed that aspects of online learning could enrich traditional learning (Kiss et al., 2021; Štibi et al., 2021) and that the adoption of blended learning and the integration of ICT in education would increase the quality of education and yield the best learning outcomes in the future (An et al., 2021; Guzzo

et al., 2022; Shamir-Inbal & Blau, 2021). Hence, they pointed out the need for more effective planning, management, organization, and execution (An et al., 2021; Pocinho et al., 2020) as well as the reformation of current curricula (Maydiantoro et al., 2022) and teaching practices, strategies, and methods (Albano et al., 2021). Finally, the need to promote and ensure equitable and inclusive education for everyone and reduce the digital divide was highlighted (Guzzo et al., 2022).

K-12 Education Students' Perspectives

Students were fond of the flexibility that online learning offered (Stajic & Ivanovic, 2021), the potential to create their own schedule (Nemec et al., 2020), and the use of multimedia which helped them comprehend the subject better (Stefanidou et al., 2022). However, online learning was negatively assessed by students (Stefanidou et al., 2022) who preferred traditional face-to-face learning and deemed it as a more effective and engaging process (Erümit, 2020; Flynn et al., 2021; Nemec et al., 2020; Stefanidou et al., 2022).

Furthermore, students regarded the lack of learning motivation, social interactions, and communication, decreased concentration and hands-on activities, home conditions, increased homework and time spent studying, as well as technical issues and poor Internet connection as the main drawbacks of online learning (Nemec et al., 2020; Stajic & Ivanovic, 2021; Stefanidou et al., 2022). Additionally, they quoted that their use of educational platforms was influenced by various factors (Almaiah et al., 2022) and although the platforms supported their learning, they characterized them as deficient in preparing students for their final examinations (Erümit, 2020). Students highly valued their parents' support and their teachers' effort to integrate diverse approaches and methods (Kirsch et al., 2021) to actively communicate, instruct, and guide them (Stajic & Ivanovic, 2021). Finally, they pointed out the need for development and training on distance education (Kirsch et al., 2021).

K-12 Education Parents'-Caregivers' Perspectives

The overall remote schooling experience and students' educational activities varied drastically (Briesch et al., 2021). As a result, some parents were satisfied with emergency remote teaching and learning (Brom et al., 2020; Seabra, Abelha, et al., 2021) while others had mixed feelings about it (Ma et al., 2021; Scarpellini et al., 2021) or expressed negative opinions regarding the psychosocial impacts it had on students (Flynn et al., 2021). Parents claimed that online learning was less effective on younger students as the learning quality was lower in primary education lessons due to less stable and organized routines, the need for multiple breaks, and the necessity to make students refocus (Scarpellini et al., 2021).

Parents highly valued teachers' effort (Levpušček & Uršič, 2021) to provide high quality teaching by adopting different strategies and activities which varied between educational levels (Seabra, Abelha, et al., 2021; Simpson, 2020). However, in several occasions, parents themselves had to play the role of teachers which required a lot of effort and commitment (Scarpellini et al., 2021). Hence, parents' workload (Seabra, Abelha, et al., 2021) and level of stress (Flynn et al., 2021) increased as they managed their own work and supported their children's remote education (Levpušček & Uršič, 2021). In spite of their lack of confidence in using ICT, parents supported their

children's online learning and got engaged in several activities with them (Brom et al., 2020; Whitley et al., 2022). Students' receiving social-emotional support from parents and schools was correlated to their self-efficacy and performance (Whitley et al., 2022). Despite parent and caregiver efforts, K-12 students experienced PTSD and depression symptoms (Ma et al., 2021) and were deprived of their social relationships and interactions (Szpunar et al., 2021) which further hindered their development and knowledge acquisition (Levpušček & Uršič, 2021). Some challenges that emerged were the lack of time, knowledge, and synchronous instructions, technical difficulties, inadequate teaching skills, support, and communication, students' decreased focus and motivation, and insufficient educational material (Briesch et al., 2021; Brom et al., 2020). Parents also quoted teachers' lack of adequate training (Szpunar et al., 2021) which resulted in teachers overloading students with assignments and tasks (Brom et al., 2020). Finally, parents highlighted the increase in social inequality and educational deprivation (Scarpellini et al., 2021), the significance of cultivating their digital competencies (Seabra, Abelha, et al., 2021), as well as the need for training programs and more effective communication and collaboration among stakeholders (Whitley et al., 2022).

K-12 Education Administrators' Perspectives

K-12 administrators expressed that the effective communication between teachers and students and their digital competencies prevented most schools from experiencing major difficulties in transitioning to online learning (Potyrała et al., 2021). Nonetheless, both positive and negative effects emerged. Particularly, the increase in visionary leadership, community partnerships, and innovative instructional models arose as the main advantages while the shortage of staff, the digital divide, difficulty in achieving effective communication and collaboration, and the online instructional practices adopted (Wharton-Beck et al., 2022).

K-12 Education Stakeholders' Perspectives

Factors such as educational outcomes, parental involvement, teaching landscape, and societal and life aspects influenced the quality of online learning (Aladsani et al., 2022). Online learning emerged as less effective in comparison to face-to-face education to teach primary education students but was more positively assessed as a means to teach secondary education students (Gören et al., 2020; Polikhun et al., 2021). Participants from distant areas were more favorable toward continuing learning online (Gören et al., 2020) while of all stakeholders, parents rated the quality of distance learning as the lowest (Polikhun et al., 2021). Teachers assessed the usefulness of the educational platforms used and the effectiveness of online learning higher than students did (Polikhun et al., 2021). However, all stakeholders questioned the quality of online learning (Aladsani et al., 2022) and agreed that traditional face-to-face learning cannot be replaced by distance education (Alkinani, 2021).

The flexibility that online learning provides emerged as its main benefit (Yan et al., 2021) with some respondents also reporting that online learning improved their academic and general knowledge (Yadav, 2022), increased their digital skills and saved them time due to less commute (Aladsani et al., 2022). Despite this fact, the increase of educational inequalities regarding sociodemographic and socio-economic differences, access to equipment, and digital competences (Zekaite et al., 2021) along with technical issues and poor Internet connection emerged as its

main issues (Yan et al., 2021). The approaches and learning media used as well as students' age, family background, and home environment influenced students' need for learning regulation support and social interactions and their expectations of online learning (Yan et al., 2021). Younger students required more support and interaction with their teachers and were less fond of online learning (Yan et al., 2021). Hence, although differences between the gender of the parents affected their perception of online learning (Polikhun et al., 2021), most parents were more actively involved and supported their children's educational activities which led to them experiencing more stress and being overloaded with tasks (Aladsani et al., 2022).

Although institutions and administration provided feedback and support concerning courses and online platforms used to facilitate the educational process, teachers followed their schedule without problems, and students were comfortable in using ICT and had the required resources to participate in distance education, all stakeholders experienced difficulties in transitioning to online learning and effectively carrying out school activities (Alkinani, 2021; Gören et al., 2020; Peñuelas et al., 2020). Additionally, due to the lack of stakeholders' training and readiness to use ICT for educational purposes (Alkinani, 2021), the need for appropriate training and technical support arose (Yadav, 2022; Zekaite et al., 2021). The reformation of education, the creation of new educational policies and assessment methods, and the revaluation of existing educational practices were highly regarded by the stakeholders (Aladsani et al., 2022; Peñuelas et al., 2020; Yadav, 2022) who also pointed out that to overcome similar educational challenges in the future, the school communities should act as a whole (Zekaite et al., 2021).

Discussion

The COVID-19 pandemic heavily affected educational stakeholders around the world. The studies analyzed were from several countries and included different educational stakeholders from primary, secondary, and K-12 education. Despite the sociocultural, economic, and educational differences among these countries, many of the results reported similar outcomes. Additionally, the perspectives and experiences of K-12 education were similar to those of primary education and secondary education respectively. The crucial role of teachers, parents, students, and administrators, their mutual respect toward the effort and contribution each provided as well as the significance of communication, collaboration, and acting as a whole were highlighted throughout the studies as significant contributors toward addressing the issues and difficulties that arose. These facts showcase that in spite of the several differences, the impact of the pandemic was felt across the educational community and stakeholders tried to find ways to continue the educational process even during such demanding times.

Despite the efforts put, the overall experience of online learning during the COVID-19 pandemic was received with mixed feelings with studies reporting positive, negative, and neutral results. As educational stakeholders became more acquainted with online learning and handling ICT technologies, they regarded it more positively. Nonetheless, their preference for traditional face-to-face learning and the fact that they considered it more effective were profound. Their experiences, perspectives, and attitudes were affected by several intrinsic and extrinsic factors. Although most teachers were not adequately trained or familiar with remote teaching, their self-efficacy, determination, and willingness to provide high quality teaching led to them joining training and support programs and familiarizing themselves with the use of ICT in their teaching at the cost of their own work-life

balance. Teachers were willing to change and adapt their pedagogical practices and teaching strategies and tried to communicate with both parents and students. In spite of their hectic schedule, changes in their daily lives, and lack of ICT knowledge, parents and guardians not only played an active role in their children's education but also had to play the role of teachers in several occasions. Particularly, they tried to provide their children with the adequate equipment and a suitable environment for their learning, increase their learning motivation, and support them both during online learning and with their homework. Students were also heavily affected by the transition to online learning. Students' initial lack of relevant experiences and skills hindered their ability to effectively participate in online learning activities. This fact was more evident to younger students. Despite this fact and owing to their parents' and teachers' support, as time went by, students became more accustomed and self-efficient in using ICT and familiar with online learning environments which greatly improved their capabilities to learn through distance education. Administrators had to deal with unprecedented events and conditions. Nonetheless, they tried to support and communicate with the members of their educational community, be more flexible, and focused on managing online learning through continuous planning, monitoring, and organizing.

All educational stakeholders faced several challenges and limitations that they had to overcome which in combination with the increased mental and physical demands led to their experiencing increased levels of stress, anxiety, and depression. The inadequate digital competencies, limited technical skills and knowledge, lack of readiness and proper training, technical support, equipment, infrastructure, and resources as well as the increased technical difficulties and poor Internet connectivity were evident. Ineffective self-regulated learning, administration, management, organization, planning were some additional issues. Disadvantages were also caused by social, economic, and environmental factors, by the impersonal study atmosphere, and by the lack of social interactions, effective communication, experimental activities, feedback, and classroom atmosphere. The course material and instructional practices adopted, the inflexible curricula structure, the ineffective assessment methods and evaluation tools used as well as the increased workload, excessive content and tasks, and cognitive overload were aspects that greatly affected the educational process and the stakeholders. Other concerns regarded learning motivation, supervision, internet addiction, online behavior, increased time spent on digital devices, and decreased physical activities. The amplification of digital divide, the lack of inclusive learning environments, and educational inequalities were also crucial drawbacks which might have long term societal level implications.

Despite the challenges that the educational community tried to address, benefits of online learning during the pandemic were highlighted. The increase of educational stakeholders' digital competences as well as self-efficacy and self-confidence in using ICT emerged as the main benefit. Moreover, the creation of new digital educational material and approaches, the creation of tools that facilitate resources and assignments delivery and management as well as the familiarization with online learning open up new teaching and learning opportunities. The use of multimedia in educational activities, the new means of communicating, providing guidance and support, and the new approaches used can enrich the existing educational practices. Online learning was widely accepted as a flexible and convenient approach that supports the development of learning autonomy and self-regulated learning habits and its ability to provide ubiquitous learning was highly regarded. Online learning leads to saving time and money which, in turn, can result in socio-economic merits. Additionally, limitations and problems of the existing educational system were highlighted through the pandemic and the experience led to educational stakeholders

having different perspectives regarding the school and education of the future. A contributory factor to that is teachers' acceptance of ICT and willingness to incorporate them in their classroom and teaching activities to enrich and complement their face-to-face lessons. The use of multimedia and blended learning environments is expected to become more popular in the future as it is favorably viewed by both students and teachers and it can result in better academic achievements, higher engagement and active involvement, and increased students' intrinsic learning motivation.

In order for these benefits to be materialized, for ICT and new technologies to be adopted and integrated in educational settings, and for the educational community to be prepared for other similar events, several aspects must be taken into account. There is a clear need for continuous education through appropriate training programs for all educational stakeholders to improve their digital competencies and become more accustomed to online learning. Technical support should be prompt and widely accessible and the technical infrastructure should be enhanced. To provide interactive and engaging learning experiences and to accommodate students' needs, new student-centered approaches and strategies should be developed, the existing curricula must be reformed, and teaching and learning activities and practices should be adapted. More effective evaluation methods as well as behavior and performance monitoring tools should be developed. Social interactions, communication, and collaboration among stakeholders must be improved. Changes should be at institutional, municipal, and national level. Hence, policymakers and governments must apply more effective strategic interventions for planning, management, and organization and ways to support educational stakeholders and provide them with the necessary socio-emotional and mental health support during unprecedented times. Finally, it is crucial to ensure access to equitable and inclusive education for everyone and to reduce the digital divide.

When comparing the results and outcomes of this systematic review with those of previous review studies that analyzed different aspects of online learning prior to the pandemic, it is obvious that the significance of some aspects remained the same. Self-efficacy in terms of computer use, Internet and information seeking, and learning management systems (Alqurashi, 2016) along with students' active involvement and engagement (Hu & Li, 2017) in interactive learning activities (Wanstreet, 2006) and their being connected with their teachers and peers and communicating both synchronously and asynchronously (Watts, 2016) are integral parts of effective online learning. Moreover, the role of teachers was also highlighted as significant in the overall educational process (Van der Spoel, 2020). Hence, it is important to explore teachers' and students' attitudes and emotions as they can be related to their perceived teaching and learning performance and educational outcomes (Banihashem et al., 2023). The creation of a community and an inclusive classroom atmosphere, the integration of new technologies, the well-designed course content, as well as social interactions between teachers and learners are also vital parts of effective online instruction delivery (Sun & Chen, 2016; Wallace, 2003). Moreover, the evolutionary bases and trajectories of online learning over the years still remain as the core aspects of distance education. These aspects involve communication, interaction, and collaboration among stakeholders, quality assurance, effective instructional design approaches and integration of educational technology, constant support for students particularly in their first experiences of online learning, virtual communities and digital material, as well as interactive and accessible massive open online courses and open educational resources that are available for everybody at any time and place (Wallace, 2003; Zawacki-Richter & Naidu, 2016). The systematic review

conducted by Bond (2020) dealt with the initial phase of the COVID-19 pandemic and its effect on education. Despite this fact, some of the results and research outcomes still remain the same. Particularly, most studies used quantitative approaches through the use of ad hoc questionnaires and surveys, involved teachers, focused on the higher levels of K-12 education, and were predominantly conducted in Europe and Asia.

When carrying out this study, some limitations were observed. Specifically, the use of only WoS and SCOPUS databases can be mentioned as one of the limitations of this study. Despite the fact that the articles of the most impactful journals, conferences, and books are indexed in these two databases, there might still be some high-quality studies that were not retrieved. Furthermore, due to the lack of evidence-based studies, the use of educational stakeholders' perspectives, experiences, and attitudes can be considered as an additional limitation. As the literature on this topic grows and studies that compare academic achievements prior and post the COVID-19 pandemic increase, it would be interesting to explore how students' performance in different subjects and educational levels around the world got affected as a future research direction.

Conclusion

The role of all educational stakeholders was crucial in addressing the challenges created by the COVID-19 pandemic. The experiences and perspectives of each educational stakeholder, from every country, and each educational level varied. Additionally, the tools, approaches, and practices adopted also differed. Therefore, this study aimed to provide a cohesive overview and summary through a systematic literature review regarding the impact of COVID-19 on primary, secondary, and K-12 education focusing on global educational stakeholders' experiences, perspectives, attitudes, opinions, and sentiments.

The majority of the studies analyzed was carried out in Europe and Asia, used ad hoc questionnaires and surveys, adopted quantitative approaches, involved teachers, and focused on K-12 education. Although studies from 57 different countries were included, there was a lack of cross-country studies conducted as only 9 out of the 205 articles involved participants from more than one country. Therefore, there is a need for future research which will emphasize the differences among countries when more evident-based studies are conducted.

Based on the results of the review, it can be concluded that despite the several differences, there were common aspects regarding the impact of COVID-19 on education, the practices adopted, the challenges faced, and the benefits gained. Specifically, all educational stakeholders acted as a whole to overcome the issues and limitations and facilitate the transition to fully online learning. Teachers became familiar with ICT at the cost of their own work-life balance and integrated them in their teaching practices while simultaneously adapting their approaches to offer high quality education. Despite their hectic schedule, parents supported their children's learning, motivated them, provided them with the required equipment, and played the role of teachers when required. Administrators tried to facilitate the communication among stakeholders and to effectively manage and organize teaching and learning activities. Besides their lack of knowledge and motivation and their clear preference for face-to-face learning, students participated in online learning, improved their digital competences, and continued learning even during such unprecedented times. The mutual respect among the stakeholders as well as their

effective communication and collaboration were crucial elements for the continuation of education.

The lack of adequate training, technical support, equipment, infrastructure, and digital competences, the increased mental and physical demands and technical issues were some of the most evident challenges that educational stakeholders had to overcome. Increased levels of stress, tiredness, anxiety, and depression were observed. Disadvantages were also caused by interpersonal and intrapersonal factors as well as socio-economic and environmental factors. One of the most significant issues was the digital divide increase, the lack of inclusive education, and the rise of educational inequalities. These crucial drawbacks must be further investigated and dealt with as they can lead to long term societal level implications. To address these issues and reap the benefits of online learning, appropriate training programs, widely accessible technical support, improved technical infrastructure, development of new student-centered approaches, creation of new evaluation methods and monitoring tools, promotion of collaboration, communication, and social interactions, socio-emotional and mental health support as well as changes at national, municipal, and institutional level are necessary.

The cultivation of educational stakeholders' digital skills, their familiarization with ICT, and their increased self-confidence and self-efficacy to use them in educational contexts were some of the main benefits. The new approaches, methods, practices, and tools created and adopted as well as the overall experiences led to the educational stakeholders' having different perspectives regarding the school and education of the future. It is expected that the integration of online learning aspects and methods will be used to enrich existing face-to-face teaching and learning activities and that the integration of new technologies and multimedia in education and the creation of blended learning environments will become a must in the near future.

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Author Information

Georgios Lampropoulos

https://orcid.org/0000-0002-5719-2125

1) International Hellenic University

Department of Information and Electronic

Engineering

GR 57400 Thessaloniki

Greece

2) Hellenic Open University

School of Humanities

GR 26335 Patras

Greece

Contact e-mail: *lamprop.geo@gmail.com*

Wilfried Admiraal

http://orcid.org/0000-0002-1627-3420

Oslo Metropolitan University

Centre for the Study of Professions

PO Box 4 St. Olavs plass N-0130 Oslo

Norway

Appendix.

Table 1. Year, Country, Educational Level, Focus Group, and Aims of the Related Studies

Citation	Year	Country	Educ. level	Focus group	Aims
(Aladsani et al., 2022)	2022	Saudi Arabia	K-12 education	Administrators, teachers, parents, and students	To explore the impact and repercussions of online learning based on the experiences and perspectives of educational stakeholders during the COVID-19 pandemic.
(Alalwani, 2022)	2022	Saudi Arabia	Primary education	Parents	To investigate the viewpoints of parents of primary education students regarding the merits and drawbacks of distance learning during the COVID-19 pandemic.
(Alarabi et al., 2022)	2022	United Arab Emirates	Secondary education	Teachers and students	To examine teachers' and students' perspectives and attitudes regarding online learning and the way it was implemented during the COVID-19 pandemic.
(Al-Bargi, 2022)	2022	Saudi Arabia	K-12 education	Teachers	To examine the approaches used by K-12 EFL teachers to migrate from traditional to online learning, the challenges they faced, and the positive aspects and advantages of distance education.
(Almaiah et al., 2022)	2022	Jordan	K-12 education	Students	To analyze student perception regarding online learning and the adoption of a particular platform.
(An et al., 2022)	2022	Taiwan	Secondary education	Students	To examine how students' attitudes toward online learning and social interactions affected their learning motivation, critical thinking, and problem-solving self-efficacy during the COVID-19 pandemic.
(Anh, 2022)	2022	Malaysia	Primary education	Teachers	To examine teachers' viewpoints and attitudes regarding the quality and effectiveness of emergency remote teaching during the COVID-19 pandemic.
(Arco, 2022)	2022	Spain	Secondary education	Teachers	To examine secondary education teachers' opinions on online learning and its influence on students' social inclusion and exclusion.
(Aslan et al., 2022)	2022	Turkey	Secondary education	Students	To explore student views regarding online learning, daily routines and life experiences during the COVID-19 pandemic.
(Avdiu, 2022)	2022	Kosovo	Primary education	Teachers	To explore primary education English teachers' perspectives regarding the use of music and songs in online learning during the COVID-19 pandemic
(Babosová	2022	Czech	K-12	Teachers	To investigate biology teacher feelings and

Citation	Year	Country	Educ. level	Focus group	Aims
et al., 2022)		Republic	education		opinions regarding online learning and its future adoption in educational activities.
(Bautista Jr et al., 2022)	2022	Philippines	K-12 education	Teachers	To examine K-12 teachers' attitudes toward student interaction and performance, tools used, lesson effectiveness and the support they received in distance learning during the COVID-19 pandemic.
(Belousova et al., 2022)	2022	Russia	Secondary education	Students	To explore the attitude of secondary education student regarding distance learning during the COVID-19 pandemic.
(Bozkurt & Peker, 2022)	2022	Turkey	Secondary education	Teachers	To explore teachers' viewpoints regarding distance education.
(Burleigh et al., 2022)	2022	India	Primary education	Teachers	To present primary education teacher experience during online learning and the inclusive methodologies used.
(Chua & Bong, 2022)	2022	Malaysia	Secondary education	Teachers	To investigate secondary education science teachers' experiences and practices to provide more inclusive education in online learning during the COVID-19 pandemic.
(Daşdemir & Cengiz, 2022)	2022	Turkey	Secondary education	Teachers	To explore how secondary education teachers assessed online learning activities during the COVID-19 pandemic.
(Duzgun, 2022)	2022	Turkey	K-12 education	Teachers	To examine teachers' emotion transfer-related perspectives of online learning during the COVID-19 pandemic.
(Eadens et al., 2022)	2022	United States	K-12 education	Teachers	To explore teachers' viewpoints on their preparedness to transition to online learning and on students' and parents' engagement.
(Faheina & Silva, 2022)	2022	Portugal	Primary education	Teachers	To explore primary education teacher perspectives and experiences of online learning during the COVID-19 pandemic.
(Guzzo et al., 2022)	2022	Italy	K-12 education	Teachers	To examine teachers' perspectives, experiences, and perceptions about distance learning and to identify challenges and issues that arose during the COVID-19 pandemic.
(Hagenaars et al., 2022)	2022	Belgium	Primary education	Parents	To investigate how parent social and economic status and teachers' expectations of them influence educational inequalities during the COVID-19 pandemic.
(Harefa & Sihombing, 2022)	2022	Indonesia	Secondary education	Students	To examine secondary education student perceptions of the effectiveness of online learning during the COVID-19 pandemic.

Citation	Year	Country	Educ. level	Focus group	Aims
(Ibáñez et al., 2022)	2022	Chile and Spain	Primary education	Teachers	To identify and compare the experiences and practices of teachers in online learning during the COVID-19 pandemic.
(İlhan et al., 2022)	2022	Turkey	K-12 education	Teachers	To explore what were teachers' attitude toward online formative assessment during the COVID-19 pandemic, how teacher gender, student number, and educational level affected it.
(Iskandarova et al., 2022)	2022	Azerbaijan	Secondary education	Students	To explore students' attitudes toward online learning, their satisfaction level, and challenges that they encountered during the COVID-19 pandemic.
(Izmagambetova et al., 2022)	2022	Kazakhstan	Primary education	Teachers	To examine primary education teachers' opinions regarding the difficulties and issues that students went through in online education.
(Jamiludin & Darnawati, 2022)	2022	Indonesia	Secondary education	Teachers and students	To investigate the perception of secondary education teachers and students regarding online learning during the COVID-19 pandemic.
(Jothinathan et al., 2022)	2022	Malaysia	Primary education	Teachers	To identify key factors that affected teacher attitudes and experiences in emergency remote teaching and compare the results of teachers that teach in local private schools with those of international public schools.
(Junaidi et al., 2022)	2022	Vietnam	K-12 education	Teachers	To explore teachers' attitudes and viewpoints regard emergency remote teaching and the challenges they faced during the COVID-19 pandemic.
(Kanibolotska et al., 2022)	2022	Ukraine	K-12 education	Teachers	To identify and analyze secondary education teachers' emotions and attitudes toward emergency remote teaching and learning.
(Kantos et al., 2022)	2022	Turkey	Primary education	Parents and students	To analyze and reveal the opinions of primary education students and their parents of distance learning during the COVID-19 pandemic.
(Karaman & Seferoğlu, 2022)	2022	Turkey	Primary education	Parents	To explore the experience and problems faced by parents of primary education students in online learning during the COVID-19 pandemic.
(Klosky et al., 2022)	2022	Georgia	Primary education	Administrators and parents	To investigate administrator's and parents' perspectives regarding the effectiveness of remote schooling during the COVID-19 pandemic.
(Kosmas et	2022	Cyprus	K-12	Teachers	To explore teachers' perspectives and

Citation	Year	Country	Educ. level	Focus group	Aims
al., 2022)			education		strategies used in distance education during the COVID-19 pandemic.
(Kuzembay eva et al., 2022)	2022	Kazakhstan	Secondary education	Teachers	To explore the challenges faced by secondary education teachers, the support they received, and the practices they followed during the COVID-19 pandemic.
(Lee, 2022)	2022	China	Primary education	Administrators, teachers, parents, and students	To explore educational stakeholders' experiences, strategies used, and challenges encountered focusing on effective leadership practices in online learning during the COVID-19 pandemic.
(Leech et al., 2022)	2022	United States	K-12 education	Teachers	To explore the experiences and challenges faced by K-12 teachers in online learning during the COVID-19 pandemic.
(Li et al., 2022)	2022	China	Secondary education	Students	To explore secondary education student satisfaction and attitudes toward online learning during the COVID-19 pandemic and identify key variables.
(López-Estrada et al., 2022	2022	Costa Rica	Primary education	Teachers	To showcase primary education teacher perspectives regarding distance education during the COVID-19 pandemic.
(Lu & Han, 2022)	2022	China	Primary education	Teachers	To investigate primary education teachers' attitudes, knowledge, preparedness, and experience of adopting and using online learning and examine their concerns and the challenges they faced.
(Manguilim otan et al., 2022)	2022	Philippines	Primary education	Parents	To explore parents of primary education students with educational needs satisfaction of online learning and issues encountered during the COVID-19 pandemic.
(Maydiantor o et al., 2022)	2022	Indonesia	K-12 education	Teachers	To explore teachers' viewpoints regarding online learning during the COVID-19 pandemic.
(Mihova et al., 2022)	2022	Bulgaria, Cyprus, Greece, and Libya	Primary education	Parents	To examine attitudes, viewpoints, expectations, and satisfaction of online learning of parents of primary education students during the COVID-19 pandemic.
(Mutluer & Bavli, 2022)	2022	Turkey	Primary education	Teachers	To explore the practices adopted by primary education teachers of disadvantaged suburban public schools to integrate online learning during the COVID-19 pandemic.
(Nikolopoul ou &	2022	Greece	Secondary education	Teachers	To go over secondary education teacher beliefs about online teaching and the school support

Citation	Year	Country	Educ. level	Focus group	Aims
Kousloglou, 2022)					they received.
(Nikolopoulou, 2022)	2022	Greece	Primary education	Teachers	To explore primary education teachers' experiences of and practices adopted in online learning during the COVID-19 pandemic.
(Ober et al., 2022)	2022	United States	Secondary education	Teachers	To comprehend teachers' experiences while teaching online during the COVID-19 pandemic.
(Panadero et al., 2022)	2022	Spain	K-12 education	Teachers	To investigate the shift to emergency remote teaching based on teachers' viewpoints and explore the assessment instruments, criteria, and standards, the use of formative feedback, and students' involvement.
(Polat & Kesik, 2022)	2022	Turkey	Primary education	Parents	To explore the viewpoints of parents of primary education students regarding distance education during the COVID-19 pandemic.
(Quintana & de León, 2022)	2022	Spain	Primary education	Parents and students	To examine the online learning experiences of primary education students and assess the availability, accessibility, and use of related digital devices based on the perspective of their families.
(Rayhana & Al-Batayha, 2022)	2022	Jordan	Primary education	Students	To explore and assess student perspectives regarding distance education during the COVID-19 pandemic.
(Reynolds et al., 2022)	2022	United States	K-12 education	Teachers	To investigate K-12 teacher perspectives regarding digital and social inequalities during COVID-19 pandemic.
(Ringer & Kreitz-Sandberg, 2022)	2022	Sweden	Secondary education	Students	To investigate how secondary education students perceived emergency remote teaching and learning during the COVID-19 pandemic.
(Robinson et al., 2022)	2022	United Arab Emirates	Primary education	Teachers	To examine teachers' opinions regarding a social emotional learning curriculum that was implemented during the COVID-19 pandemic
(Samsen-Bronsveld et al., 2022)	2022	Netherlands	Primary education	Parents	To examine parents' viewpoints regarding the effect of online learning on students' motivation, wellbeing, and satisfaction.
(Senft et al., 2022)	2022	Austria	K-12 education	Teachers	To explore the perspectives of teachers regarding the difficulties they and their students faced in distance learning during the COVID-19 pandemic.
(Seynhaeve et al., 2022)	2022	Belgium	Secondary education	Students	To explore secondary education student perspectives of blended emergency remote

Citation	Year	Country	Educ. level	Focus group	Aims
					teaching and the difficulties they overcame in online learning during the COVID-19 pandemic.
(Songkram & Osuwan, 2022)	2022	Thailand	K-12 education	Teachers	To examine K-12 teachers' acceptance, willingness, and behavioral intentions of using digital learning platforms during the COVID-19 pandemic.
(Stefanidou et al., 2022)	2022	Greece	K-12 education	Students	To examine secondary education students' views on physics teaching practices in online learning during the COVID-19 pandemic.
(Tangonan, 2022)	2022	Philippines	Secondary education	Students	To explore how online learning affected student motivation, interest, anxiety, and performance in mathematics based on secondary education student viewpoints.
(Thurm et al., 2022)	2022	Belgium, Germany, and Netherlands	Secondary education	Teachers and students	To investigate students' experiences and views regarding online learning and analyze teachers' practices and beliefs concerning emergency remote teaching.
(Timmons et al., 2022)	2022	United States	Primary education	Teachers and parents	To examine teachers' and parents' experiences and viewpoints about distance education, the practices used, and the impact it had during the COVID-19 pandemic.
(Tzankova et al., 2022)	2022	Italy	Secondary education	Students	To investigate secondary education students' views and experiences of emergency remote teaching and learning during the COVID-19 pandemic.
(Uysal & Kıvanç Çağanağa, 2022)	2022	Cyprus	Secondary education	Teachers	To explore secondary school English teacher perception regarding online learning, the activities they adopted, the difficulties they faced, and the solutions they came up with.
(Villa et al., 2022)	2022	Spain	Primary education	Teachers	To investigate teachers' emergency remote teaching experiences during the COVID-19 pandemic.
(Weltrowska et al., 2022)	2022	Poland	K-12 education	Teachers	To identify the benefits and disadvantages of distance education based on teachers' viewpoints during the COVID-19 pandemic.
(Wharton-Beck et al., 2022)	2022	United States	K-12 education	Administrators	To comprehend administrators' preparedness to address the challenges that arose during the COVID-19 pandemic and examine their opinions regarding the benefits and issues of online learning.
(Whitley et al., 2022)	2022	Canada	K-12 education	Parents	To study parents' of K-12 students with special education needs perception of their children's

Citation	Year	Country	Educ. level	Focus group	Aims
					self-efficacy and the support they received from their school during the COVID-19 pandemic.
(Widiasih et al., 2022)	2022	Indonesia	Secondary education	Parents	To investigate parents' experiences and viewpoints regarding online learning and its impact on students during the COVID-19 pandemic.
(Yadav, 2022)	2022	India	K-12 education	Parents, teachers, and students	To explore the satisfaction of teachers, parents, and students in relation to online learning and their views on blended learning after having experienced distance education.
(Zheng et al., 2022)	2022	China	Primary education	Students	To explore how satisfaction, perceived effectiveness, and preference in online learning of primary education students was affected by individual, family, and school factors during the COVID-19 pandemic.
(Albano et al., 2021)	2021	Italy	K-12 education	Teachers	To identify and explore K-12 teacher experience of transitioning from traditional learning to online learning.
(Alghamdi & Al-Ghamdi, 2021)	2021	Saudi Arabia	Primary education	Teachers	To explore primary education teachers views on distance education during the COVID-19 pandemic.
(Alkinani, 2021)	2021	Saudi Arabia	K-12 education	Parents, teachers, and students	To examine the beliefs and attitudes of parents as well as the acceptance and perception of teachers and students regarding distance education during the COVID-19 pandemic.
(Almarashdi & Jarrah, 2021)	2021	United Arab Emirates	Secondary education	Students	To look into secondary education student perspectives of learning mathematics in distance learning during the COVID-19 pandemic.
(Almeida et al., 2021)	2021	Brazil	Secondary education	Administrators, teachers, and students	To examine the practices used in public and private schools and examine the benefits and drawbacks arisen from online learning during the COVID-19 pandemic.
(An et al., 2021)	2021	United States	K-12 education	Teachers	To investigate K-12 teacher perspectives, experiences, and feelings toward online teaching and their suggestions for future improvements.
(Annamalai, 2021)	2021	Malaysia	Secondary education	Students	To investigate secondary education students' perception and viewpoints regarding online learning during the COVID-19 pandemic, their experiences, preferred learning tools, and

Citation	Year	Country	Educ. level	Focus group	Aims
					suggestions.
(Aslan et al., 2021)	2021	Turkey	Secondary education	Teachers	To explore secondary education teachers' opinions of the adaptability and effectiveness of their current curricula in online learning.
(Balaganesh et al., 2021)	2021	India	Secondary education	Teachers	To explore secondary education teacher attitudes and knowledge of online learning and the practices they adopted during the COVID-19 pandemic.
(Bharaj & Singh, 2021)	2021	United States	Primary education	Administrators, teachers, and parents	To explore the perspectives of different education stakeholders concerning the way they handled the COVID-19 pandemic while continuing to educate children.
(Briesch et al., 2021)	2021	United States	K-12 education	Caregivers	To comprehend the experience of caregivers of schooling from home during the COVID-19 pandemic.
(Budnyk et al., 2021)	2021	Ukraine	K-12 education	Teachers	To explore secondary education mathematics teacher perspectives regarding the transition from traditional learning to online learning during the COVID-19 pandemic.
(Cadamuro et al., 2021)	2021	Italy	Secondary education	Teachers and students	To investigate secondary education teacher and student experiences regarding online learning, the technical issues they faced, their metacognitive skills, and their attitude and beliefs during the COVID-19 pandemic.
(Çakmak & Kaçar, 2021)	2021	Turkey	Secondary education	Teachers	To analyze secondary education social studies teacher opinions concerning distance education during the COVID-19 pandemic.
(Centonze et al., 2021)	2021	Italy	Secondary education	Teachers	To explore secondary education teacher experiences of distance learning during the COVID-19 pandemic from social and health perspectives.
(Chen, 2021)	2021	China	Secondary education	Teachers	To investigate the experience, difficulties and thoughts of secondary education teachers regarding adopting and implementing online learning during the COVID-19 pandemic.
(Cui et al., 2021)	2021	China	Primary education	Parents and students	To examine the attitudes of primary education students and their parents toward online learning during the COVID-19 pandemic.
(D'Isanto & D'Elia, 2021)	2021	Italy	Primary education	Teachers	To identify and analyze the opinions, perception, and practices of primary school physical education teachers during online learning.
(Dedić &	2021	Croatia	Primary	Students	To explore primary education student

Citation	Year	Country	Educ. level	Focus group	Aims
Jokić, 2021)			education		perspectives and satisfaction regarding emergency remote teaching and learning and compare them with classroom practices.
(Demir et al., 2021)	2021	Turkey	K-12 education	Teachers	To investigate the attitude and views of K-12 mathematics teachers regarding distance education and explore how their gender, age, educational level, digital literacy, and professional experience could affect them.
(Drijvers et al., 2021)	2021	Belgium, Germany, and Netherlands	Secondary education	Teachers	To examine secondary education mathematic teachers' beliefs and the practices, didactical approaches, and assessment formats that they used in online learning during the COIVD-19 pandemic.
(Drvodelić & Domović, 2021)	2021	Croatia	Primary education	Parents	To examine the opinions of parents of primary school students on various aspects of distance education.
(Drvodelić et al., 2021)	2021	Croatia	Primary education	Parents	To explore the satisfaction of parents of primary education students and perception of emergency remote education and examine the correlation of these factors with parents working conditions and children's independence.
(Duroisin et al., 2021)	2021	Belgium	K-12 education	Teachers	To identify and explore the educational inequalities that were created during the COVID-19 pandemic based on K-12 teacher perspectives.
(Faccia et al., 2021)	2021	Italy	K-12 education	Teachers	To explore how teachers' practices, social interactions, and their self-efficacy were affected in emergency remote teaching during the COVID-19 pandemic.
(Flynn et al., 2021)	2021	Ireland	K-12 education	Parents and students	To explore parents' and students' viewpoints and experiences of online learning during the COVID-19 pandemic as well as the psychosocial impacts schooling at home had on them.
(Friskawati et al., 2021)	2021	Indonesia	Primary education	Teachers	To explore elementary school physical education teachers attitudes regarding mobile learning during the COVID-19 pandemic.
(Fujita et al., 2021)	2021	Japan	K-12 education	Teachers	To examine the mental readiness of K-12 teachers to tackle the challenges arisen by the COVID-19 pandemic and explore their views and concerns.
(Gobbi et	2021	Italy	Primary	Teachers	To examine if and how primary school

Citation	Year	Country	Educ. level	Focus group	Aims
al., 2021)			education		physical education teachers' self-efficacy and work engagement changed during the COVID-19 pandemic.
(Hadriana et al., 2021)	2021	Indonesia	Secondary education	Administrators	To analyze secondary education administrators' actions to effectively manage and integrate online learning during the COVID-19 pandemic.
(Howley, 2021)	2021	Australia, Brazil, China, Ireland, Mexico, New Zealand, South Korea, and the United States	K-12 education	Teachers	To investigate the experience of K-12 physical education teachers in online learning and the actions they took to overcome the barriers and difficulties of distance education during the COVID-19 pandemic.
(Hysaj, 2021)	2021	Albania	K-12 education	Teachers	To investigate K-12 STEM teachers' attitudes and challenges faced during the adoption and implementation of online teaching as well as their preparedness to teach remotely and the pedagogical approaches they used.
(Ivaniuk & Ovcharuk, 2021)	2021	Ukraine	Secondary education	Teachers	To identify and examine secondary education teachers' challenges and issues faced in online learning during the COVID-19 pandemic.
(Ivanković & Igić, 2021)	2021	Croatia	Primary education	Parents	To investigate the attitudes of parents of primary education students toward distance learning during the COVID-19 pandemic.
(Jiang et al., 2021)	2021	China	Secondary education	Students	To investigate how online learning and blended learning influence secondary education students' academic performance, interest, attitude and learning experience.
(Jimoyiannis et al., 2021)	2021	Greece	K-12 education	Teachers	To investigate K-12 teachers' views regarding emergency remote teaching and learning.
(Jogezai et al., 2021)	2021	Pakistan	K-12 education	Teachers	To investigate K-12 teacher attitudes toward the use of social media as a means to facilitate and enrich online learning during the COVID-19 pandemic.
(Jovanovic & Dimitrijevic, 2021)	2021	Serbia	Secondary education	Teachers	To examine secondary education teacher opinions regarding online learning, the barriers they faced, and the advantages of distance education in correlation to their work experience.
(Kaličanin et al., 2021)	2021	Serbia	Secondary education	Students	To explore how the online teaching process improved during the COVID-19 pandemic

Citation	Year	Country	Educ. level	Focus group	Aims
					based on the perspectives of secondary education students.
(Khanna & Kareem, 2021)	2021	United States	K-12 education	Teachers	To explore and present the experiences of K-12 teachers about transitioning to and teaching in online learning environments.
(Kim et al., 2021)	2021	United States	K-12 education	Teachers	To examine K-12 physical education teacher perspectives and experiences of transitioning to online learning and teaching in such environments.
(Kirsch et al., 2021)	2021	Luxembourg, Germany and Switzerland	K-12 education	Students	To examine student satisfaction, experiences and perspectives of distance education and the practices adopted during the COVID-19 pandemic.
(Kiss et al., 2021)	2021	Romania	K-12 education	Teachers	To showcase the experiences and perspectives of K-12 teachers regarding the transition from traditional learning to online learning.
(Kochan, 2021)	2021	Poland	Secondary education	Students	To investigate students' perspectives regarding the quality of online learning they received during the COVID-19 pandemic.
(Korcz et al., 2021)	2021	Poland, North Macedonia, Croatia, Turkey, Bulgaria, and Kosovo	K-12 education	Teachers	To explore K-12 physical education teacher experiences with online learning, the challenges they encountered, and the perceived benefits of distance education during the COVID-19 pandemic.
(Kundu & Bej, 2021)	2021	India	Secondary education	Teachers	To explore secondary education teacher viewpoints regarding the transition of traditional learning to online learning.
(Ladendorf et al., 2021)	2021	United States	K-12 education	Teachers	To explore the correlation between teachers' success and satisfaction while delivering online learning in the COVID-19 pandemic with their self-efficacy.
(Lee et al., 2021)	2021	South Korea	Secondary education	Students	To analyze how secondary education students risk perception and learning attitudes toward the COVID-19 pandemic affected their learning outcomes and performance.
(Lenka et al., 2021)	2021	Slovakia	Primary education	Students	To investigate primary education student perception of effective physical education in online learning during the COVID-19 pandemic.
(Leproni, 2021)	2021	Spain, Italy, and Romania	Primary education	Teachers	To investigate primary education teachers' perspectives, beliefs, and experiences concerning distance learning prior to and

Citation	Year	Country	Educ. level	Focus group	Aims
					during the COVID-19 pandemic.
(Levpušček & Uršič, 2021)	2021	Slovenia	K-12 education	Parents	To identify the attitude of parents of K-12 students concerning emergency remote teaching.
(Liao et al., 2021)	2021	United States	Primary education	Teachers	To present primary education teacher perspectives and experiences on designing and adopting online instructions and practices in elementary education.
(López-Fernández et al., 2021)	2021	Spain	Secondary education	Teachers	To examine secondary school physical education teacher perception regarding the use of blended learning, its potentials, and drawbacks.
(Ma et al., 2021)	2021	China	K-12 education	Parents	To examine K-12 student attitudes regarding the effectiveness of online learning and explore how their mental health was affected during the COVID-19 pandemic.
(Ma et al., 2021)	2021	China	Secondary education	Students	To examine secondary education students' attitude toward online learning during the COVID-19 pandemic and assess their post-traumatic stress disorder symptoms.
(Mabrur et al., 2021)	2021	Indonesia	Secondary education	Students	To examine secondary education students' prior technological knowledge, access to the necessary digital devices, readiness, as well as their motivation and willingness to participate in online learning.
(Manca & Delfino, 2021)	2021	Italy	Secondary education	Parents, teachers, and students	To investigate the experience and perspectives of K-12 education stakeholders concerning the adoption of emergency remote teaching and the practices used to implement distance learning in regard to student engagement, motivation, autonomy, and active participation.
(Maněnová et al., 2021)	2021	Czech Republic	Primary education	Administrators	To explore the experiences and views of primary school administrators concerning distance education during the COVID-19 pandemic.
(Maras, 2021)	2021	Croatia	Primary education	Parents	To understand parents' views regarding teacher-students communication during the COVID-19 pandemic.
(Martins et al., 2021)	2021	Portugal	Primary education	Parents, teachers, and students	To explore the perceptions of teachers and parents of primary education students concerning distance learning during the COVID-19 pandemic.
(Miguel et	2021	Philippines	Secondary	Parents,	To assess the role and involvement of teachers

Citation	Year	Country	Educ. level	Focus group	Aims
al., 2021)			education	teachers, and students	and parents in online learning based on student perceptions.
(Moldavan et al., 2021)	2021	United States	Secondary education	Teachers	To investigate the perspectives of secondary education mathematics teachers regarding the transition from traditional learning to online learning during the COVID-19 pandemic.
(Moorhouse & Wong, 2021)	2021	China	K-12 education	Teachers	To investigate the readiness of teachers, the way they adapted, and how their pedagogical and technological skills evolved during the COVID-19 pandemic.
(Ozamiz-Etxebarria et al., 2021)	2021	Spain	K-12 education	Teachers	To investigate K-12 teacher symptomatology regarding school reopening.
(Petek, 2021)	2021	Slovenia	Primary education	Teachers	To examine primary education language teacher experiences and opinions regarding online learning during the COVID-19 pandemic.
(Polikhun et al., 2021)	2021	Ukraine	K-12 education	Parents, teachers, and students	To examine K-12 stakeholders experience of distance learning during the COVID-19 pandemic, identify the advantages and drawbacks they faced and provide direction for further improvement.
(Potyrała et al., 2021)	2021	Poland	K-12 education	Administrators	To investigate K-12 administrators' viewpoints regarding online learning, the challenges faced, and future potentials for distance education.
(Prasetyo et al., 2021)	2021	Philippines	Secondary education	Students	To examine which factors affected secondary education teachers' acceptance of online learning platforms based on student views.
(Purnomo et al., 2021)	2021	Indonesia	Secondary education	Teachers	To examine the assessment instruments used by secondary education physics teachers in online learning during the COVID-19 pandemic.
(Ristivojevic, 2021)	2021	Serbia	Primary education	Teachers	To explore primary education music teacher perspectives about online learning, the difficulties and challenges they faced, and the advantages of distance education that can be integrated into traditional learning.
(Russo et al., 2021)	2021	Australia	Primary education	Teachers	To investigate the struggles made and difficulties faced by students based on teacher attitudes.
(Samawi, 2021)	2021	Jordan	Secondary education	Teachers	To explore the secondary education teachers' perspectives regarding online learning and its relation to the educational crisis management.

Citation	Year	Country	Educ. level	Focus group	Aims
(Sánchez et al., 2021)	2021	Spain	Primary education	Parents	To investigate the factors that affected the parents of primary education students to adapt to emergency remote teaching and learning during the COVID-19 pandemic.
(Santos et al., 2021)	2021	Portugal	Primary education	Teachers	To identify the benefits and challenges of distance learning based on teacher perspectives.
(Scarpellini et al., 2021)	2021	Italy	K-12 education	Parents	To examine parents' experiences of supporting their children during online learning, the effectiveness of online learning and its effect on student psychological wellbeing.
(Schuck et al., 2021)	2021	United States	K-12 education	Teachers	To investigate primary education teacher experiences regarding online learning and their collaboration and communication with parents.
(Seabra, Abelha, et al., 2021)	2021	Portugal	K-12 education	Parents	To examine the perspectives of parents of K-12 students concerning emergency remote teaching and learning during the COVID-19 pandemic.
(Seabra, Teixeira, et al., 2021)	2021	Portugal	K-12 education	Teachers	To explore K-12 teacher perspectives regarding online learning, difficulties faced, student constraints, and benefits observed.
(Shamir-Inbal & Blau, 2021)	2021	Israel	K-12 education	Teachers	To examine K-12 teachers' pedagogical strategies during online learning and the benefits and drawbacks that emerged.
(Silva & da Silva, 2021)	2021	Brazil	Primary education	Parents, teachers, and students	To present the perception of teachers, parents, and students regarding online learning and the curricular practices adopted during the COVID-19 pandemic.
(Šimková, 2021)	2021	Czech Republic	Primary education	Parents	To examine how mothers of primary education students approached and regarded online learning during the COVID-19 pandemic.
(Simonova et al., 2021)	2021	Czech Republic	Secondary education	Students	To present students' collective opinion and experience on the effectiveness of online learning, feedback, advantages and disadvantages of online learning, and recommendation for improvement.
(Singh et al., 2021)	2021	India	Primary education	Teachers	To explore the challenges, issues, and barriers that primary education teachers faced while teaching online.
(Smetackova & Stech, 2021)	2021	Czech Republic	Primary education	Parents	To investigate how parents of primary education students evaluated distance learning and to analyze their concerns.
(Sofianidis	2021	Cyprus	Secondary	Students	To assess the impact that the closure of school

Citation	Year	Country	Educ. level	Focus group	Aims
et al., 2021)			education		had on secondary education students, explore the issues and challenges that they experienced, and investigate their perceptions and concerns.
(Stajic & Ivanovic, 2021)	2021	Serbia	K-12 education	Students	To investigate K-12 student attitude regarding online learning during the COVID-19 pandemic.
(Štibi et al., 2021)	2021	Croatia	K-12 education	Teachers	To examine how K-12 physics teachers adopted online learning and how they perceived its effectiveness during the COVID-19 pandemic.
(Stojkovic & Jelic, 2021)	2021	Serbia	Primary education	Students	To examine primary education student attitudes regarding the benefits and drawbacks as well as the motivational and emotional components of online learning.
(Sumarsono et al., 2021)	2021	Indonesia	Secondary education	Teachers	To explore secondary education teacher perspectives regarding the effectiveness of online learning and parents' participation and support during the COVID-19 pandemic.
(Surianshah, 2021)	2021	Malaysia	Secondary education	Students	To assess students' learning outcomes based on their perspectives regarding the effectiveness of online classes while taking student financial constraints into account.
(Svobodova et al., 2021)	2021	Czech Republic	Primary education	Teachers	To examine the challenges and problems that teachers encountered during the COVID-19 pandemic and explore their perspectives regarding distance education.
(Szpunar et al., 2021)	2021	Italy	K-12 education	Parents	To explore the changes that took place in the educational habits of K-12 students.
(Tay et al., 2021)	2021	Singapore	K-12 education	Teachers	To examine the practices adopted by K-12 mathematics teachers to design more engaging online learning experiences for students.
(Timmons et al., 2021)	2021	Canada	Primary education	Parents and teachers	To examine parents' and teachers' experiences of online learning, benefits and challenges occurred, and recommendations for future improvements.
(Unger et al., 2021)	2021	United States	Secondary education	Administrators, parents, teachers, and students	To assess the feasibility and acceptability of implementing COVID-19 safety measurements to transition back to conventional face-to-face learning based on the opinions of educational stakeholders.
(Usca et al., 2021)	2021	Latvia	K-12 education	Teachers	To investigate teachers' attitude regarding emergency remote teaching during the

Citation	Year	Country	Educ. level	Focus group	Aims
					COVID-19 pandemic.
(Velasco et al., 2021)	2021	Italy	Secondary education	Teachers	To examine secondary education teachers' perspectives regarding the feasibility and usefulness of implementing a specific educational program in distance teaching.
(Volodymyr ovych et al., 2021)	2021	Ukraine	Secondary education	Teachers and students	To examine secondary education teachers' and students' perceptions of distance education after having experienced both traditional and online learning.
(Watermeye r et al., 2021)	2021	Singapore	Secondary education	Teachers	To investigate the long-term impact of emergency remote teaching and learning on organizing, delivering, and assessing traditional educational activities.
(Wong et al., 2021)	2021	Malaysia	Secondary education	Teachers	To explore the relationship between secondary education teachers' digital competence and psychological status in online learning activities during the COVID-19 pandemic.
(Xu, 2021)	2021	China	Secondary education	Students	To examine secondary education student perspectives regarding their online learning experience and the effectiveness of distance education during the COVID-19 pandemic.
(Yan et al., 2021)	2021	China	K-12 education	Students	To examine K-12 student perception regarding online learning during the COVID-19 pandemic, its obstacles and benefits, and future expectations of effective online learning.
(Yüksel et al., 2021)	2021	Turkey	Primary education	Parents and teachers	To analyze the difficulties and issues faced by primary education students with educational needs based on the perspectives of their teachers and parents.
(Zekaite et al., 2021)	2021	Lithuania	K-12 education	Administrators, Parents, teachers, and students	To examine administrators' perspectives regarding the educational inequalities that took place during the COVID-19 pandemic in terms of digital equipment and skills, as well as sociodemographic and socioeconomic factors.
(Zhao et al., 2021)	2021	China	Primary education	Parents, teachers, and students	To examine how the involved stakeholders perceived online learning during the COVID-19 pandemic, if learning was adequate, and what opportunities and challenges arose.
(Züchner & Jäkel, 2021)	2021	Germany	Secondary education	Students	To examine student digital media use and homework accomplishment during distance education.
(Albó et al., 2020)	2020	Spain	K-12 education	Teachers	To present teacher experiences of online learning, the support they received, and the

Citation	Year	Country	Educ. level	Focus group	Aims
					challenges they faced before and during the COVID-19 pandemic.
(Alfaro et al., 2020)	2020	China	K-12 education	Teachers	To examine K-12 teachers' perspectives regarding the online learning challenges and possibilities that arose during the COVID-19 pandemic.
(Alper, 2020)	2020	Turkey	K-12 education	Teachers	To explore K-12 teacher perspectives regarding the process of transitioning from traditional leaning to online learning during the COVID-19 pandemic.
(Anderson & Hira, 2020)	2020	United States	Primary education	Teachers	To explore teachers experiences of teaching subjects that require hands-on experiments in online learning during the COVID-19 pandemic.
(Ayda et al., 2020)	2020	Cyprus	Primary education	Teachers	To examine how distance education could support and allow primary education students with special educational needs to continue their education based on teacher perspectives.
(Babic et al., 2020)	2020	Croatia	Secondary education	Teachers	To explore the main factors that affect and predict secondary education students' will and intention to participate in online learning activities after the COVID-19 pandemic.
(Babinčáková & Bernard, 2020)	2020	Poland	Secondary education	Teachers and students	To explore secondary education chemistry teacher perspectives and experiences of online learning during the COVID-19 pandemic.
(Brom et al., 2020)	2020	Czech Republic	K-12 education	Parents	To investigate the experiences of home education of parents of primary education students during the COVID-19 lockdown.
(Çelík & İşler, 2020)	2020	Turkey	Primary education	Students	To examine primary education refugee student feelings and thoughts about online learning and the opportunities and drawbacks they ran into in online learning during the COVID-19 pandemic.
(Code et al., 2020)	2020	Canada	Secondary education	Teachers	To examine teacher perspectives regarding the role of emergency remote teaching in blended learning and their future concerns of online learning.
(Demir & Özdaş, 2020)	2020	Turkey	Primary education	Teachers	To investigate primary education teachers' opinions of distance education activities during the COVID-19 pandemic.
(Dias-Trindade et	2020	Portugal and Brazil	Secondary education	Teachers	To examine teacher preparedness and perspectives of the transition from traditional

Citation	Year	Country	Educ. level	Focus group	Aims
al., 2020)					learning to online learning during the COVID-19 pandemic.
(Erümit, 2020)	2020	Turkey	K-12 education	Students	To evaluate the online practices and activities based on K-12 student viewpoints and experiences during the COVID-19 pandemic.
(Ferraro et al., 2020)	2020	Italy	Secondary education	Students	To explore secondary education students' perception of distance learning during the COVID-19 pandemic.
(Gokuladas & Baby Sam, 2020)	2020	India	K-12 education	Teachers	To investigate the perception of K-12 teachers regarding factors that potentially demotivate students to participate in online learning during the COVID-19 pandemic.
(Gören et al., 2020)	2020	Turkey	K-12 education	Administrators, parents, teachers, and students	To examine administrators' perspectives regarding distance education during the COVID-19 pandemic.
(Ionescu et al., 2020)	2020	Romania	Secondary education	Parents, teachers, and students	To explore the perspectives of teachers, parents, and students regarding the effectiveness and sustainability of online learning during the COVID-19 pandemic.
(Lau & Lee, 2020)	2020	China	Primary education	Parents	To examine parental views regarding distance learning and the support they were required to provide.
(Lie et al., 2020)	2020	Indonesia	Secondary education	Teachers	To investigate how secondary education language teachers engaged in online learning, changed their practices, overcame challenges, and what they hoped for the future.
(Lyu et al., 2020)	2020	China	Primary education	Grandparents, teachers, and students	To explore the intergenerational learning of grandparents and grandchildren during online learning.
(Mailizar et al., 2020)	2020	Indonesia	Secondary education	Students	To explore secondary education mathematics teacher adoption of online learning and investigate the barriers and challenges they faced and correlate them with their demographic background.
(Mikušková & Verešová, 2020)	2020	Slovakia	K-12 education	Teachers	To investigate K-12 educators, perception of managing and teaching in distance education and identify how their personality traits, emotions, and perspectives influenced their effectiveness and experience.
(Nemec et al., 2020)	2020	Czech Republic	K-12 education	Students	To examine K-12 student perspectives of online learning while focusing on their homework and time spent to complete the

Citation	Year	Country	Educ. level	Focus group	Aims
					assigned tasks during the COVID-19 pandemic in comparison to their prior experiences.
(Peñuelas et al., 2020)	2020	Mexico	K-12 education	Teachers and students	To examine how teachers and students evaluated the online learning experience in terms of the devices and technological resources used, the difficulties they experienced, and the support they received.
(Pocinho et al., 2020)	2020	Portugal	K-12 education	Teachers	To examine teachers' readiness, adaptability and practices and comprehend the effect that digital resources had on teaching quality, motivation and academic success.
(Simpson, 2020)	2020	United States	K-12 education	Parents	To investigate students' and parents' experiences and challenges of online learning during the COVID-19 pandemic, the most effective strategies and tools used during online learning, and their opinion of how to improve the learning experience.
(Wang et al., 2020)	2020	China	K-12 education	Teachers	To explore K-12 teachers' attitude regarding the adoption, functionality, and effectiveness of various online learning platforms.

Table 2. Research Method, Sample, and Measurement Tools of the Related Studies

Citation	Research method	Sample	Measurement - Research tools
(Aladsani et al., 2022)	Qualitative	43 administrators, 208 teachers, 133 parents, and 216 students	Interviews and observations
(Alalwani, 2022)	Qualitative	28 parents	Interviews
(Alarabi et al., 2022)	Quantitative	58 teachers and 418 students	Ad hoc 12-item online questionnaire adapted from Kisanga & Ireson (2016)
(Al-Bargi, 2022)	Mixed	250 teachers	30-item ad hoc questionnaire and interviews
(Almaiah et al., 2022)	Quantitative	300 students	Ad hoc online questionnaire
(An et al., 2022)	Quantitative	1,596 students	Ad hoc questionnaire adapted from other studies (Bandura & others, 2006; Biggs et al., 2001; Facione, 1990; Han, 2020; Kuh, 2001)
(Anh, 2022)	Quantitative	124 teachers	Ad hoc online survey
(Arco, 2022)	Quantitative	160 participants	Ad hoc online questionnaire
(Aslan et al., 2022)	Qualitative	20 students	Semi-structured interviews
(Avdiu, 2022)	Qualitative	5 teachers	Interviews
(Babosová et al., 2022)	Mixed	368 teachers	14-item ad hoc questionnaire including open-ended questions
(Bautista Jr et al., 2022)	Quantitative	151 teachers	27-item ad hoc online survey
(Belousova et al., 2022)	Quantitative	170 students	Ad hoc questionnaire
(Bozkurt & Peker, 2022)	Qualitative	8 teachers	Semi-structured interviews
(Burleigh et al., 2022)	Qualitative	5 teachers	Interviews and observations
(Chua & Bong, 2022)	Quantitative	126 teachers	17-item ad hoc online survey
(Daşdemir & Cengiz, 2022)	Qualitative	30 teachers	Open-ended question ad hoc questionnaire
(Duzgun, 2022)	Quantitative	630 teachers	Emotional Presence in Online Learning Scale (Sarsar & Kisla, 2016)
(Eadens et al., 2022)	Quantitative	140 teachers	22-item ad hoc survey
(Faheina & Silva, 2022)	Mixed	18 teachers	Ad hoc questionnaire including open-ended questions
(Guzzo et al., 2022)	Quantitative	977 teachers	Ad hoc online survey
(Hagenaars et al., 2022)	Qualitative	24 parents	Interviews
(Harefa & Sihombing, 2022)	Quantitative	30 students	20-item ad hoc online survey
(Ibáñez et al., 2022)	Qualitative	40 teachers	Semi-structured interviews
(İlhan et al., 2022)	Mixed	369 teachers	20-item ad hoc survey and interviews
(Iskandarova et al., 2022)	Quantitative	5,791 students	14-item ad hoc survey
(Izmagambetova et al., 2022)	Qualitative	25 teachers	Semi-structured interviews
(Jamiludin & Darnawati, 2022)	Mixed	25 teachers and 161 students	Ad hoc questionnaire and interviews

Citation	Research method	Sample	Measurement - Research tools
(Jothinathan et al., 2022)	Mixed	28 teachers	Ad hoc online survey and interviews
(Junaidi et al., 2022)	Qualitative	9 teachers	Interviews
(Kanibolotska et al., 2022)	Mixed	413 teachers	Ad hoc questionnaire including open-ended questions
(Kantos et al., 2022)	Mixed	23 parents and 23 students	Ad hoc questionnaire including open-ended questions
(Karaman & Seferoğlu, 2022)	Quantitative	313 parents	Ad hoc online questionnaire
(Klosky et al., 2022)	Mixed	8 Administrators and 26 parents	Online interviews and ad hoc survey
(Kosmas et al., 2022)	Mixed	392 teachers	Ad hoc online questionnaire including open-ended questions
(Kuzembayeva et al., 2022)	Qualitative	11 teachers	Interviews and observations
(Lee, 2022)	Mixed	16 administrators, 187 teachers, 807 parents, and 1,767 students	Ad hoc questionnaires and interviews
(Leech et al., 2022)	Qualitative	604 teachers	Open-ended question ad hoc questionnaire
(Li et al., 2022)	Quantitative	788 students	Ad hoc survey
(López-Estrada et al., 2022)	Qualitative	4 teachers	Interviews
(Lu & Han, 2022)	Mixed	250 teachers	Ad hoc survey with 19 closed questions and 1 open-ended question
(Manguilimotan et al., 2022)	Mixed	20 parents	Ad hoc questionnaire and interviews
(Maydiantoro et al., 2022)	Quantitative	276 teachers	Ad hoc online questionnaire
(Mihova et al., 2022)	Quantitative	734 parents	Ad hoc questionnaire
(Mutluer & Bavli, 2022)	Qualitative	10 teachers	Semi-structured interview
(Nikolopoulou & Kousloglou, 2022)	Quantitative	238 teachers	Ad hoc online questionnaire
(Nikolopoulou, 2022)	Qualitative	14 teachers	Interviews
(Ober et al., 2022)	Qualitative	7 teachers	Interviews
(Panadero et al., 2022)	Quantitative	936 teachers	91-item ad hoc survey
(Polat & Kesik, 2022)	Qualitative	76 parents	Interviews
(Quintana & de León, 2022)	Mixed	1,228 families	Semi-structured interviews and ad hoc questionnaire
(Rayhana & Al-Batayha, 2022)	Quantitative	354 students	15-item ad hoc questionnaire
(Reynolds et al., 2022)	Qualitative	21 teachers	Interviews
(Ringer & Kreitz-Sandberg, 2022)	Qualitative	13 students	Semi-structured interviews
(Robinson et al., 2022)	Qualitative	52 teachers	Ad hoc survey with open-ended questions

Citation	Research method	Sample	Measurement - Research tools
(Samsen-Bronsveld et al., 2022)	Quantitative	312 parents	Ad hoc online questionnaire
(Senft et al., 2022)	Mixed	1,281 teachers	Ad hoc online survey including open-ended questions
(Seynhaeve et al., 2022)	Qualitative	23 students	Q methodology
(Songkram & Osuwan, 2022)	Quantitative	519 teachers	Online questionnaire based on the Technology Acceptance Model (TAM) (Wallace & Sheetz, 2014)
(Stefanidou et al., 2022)	Mixed	197 students	Ad hoc questionnaire with 14 closed-ended questions and 2 open-ended ones
(Tangonan, 2022)	Quantitative	207 students	Ad hoc questionnaire
(Thurm et al., 2022)	Quantitative	323 teachers and 2,126 students	2 ad hoc questionnaires
(Timmons et al., 2022)	Qualitative	25 teachers and 11 parents	Semi-structured interviews
(Tzankova et al., 2022)	Qualitative	64 students	Interviews
(Uysal & Kıvanç Çağanağa, 2022)	Qualitative	13 teachers	Interviews
(Villa et al., 2022)	Qualitative	10 teachers	Semi-structured interviews
(Weltrowska et al., 2022)	Quantitative	703 teachers	Ad hoc questionnaire
(Wharton-Beck et al., 2022)	Mixed	95 administrators	18-item ad hoc online survey including open-ended questions and interviews
(Whitley et al., 2022)	Quantitative	263 parents	Ad hoc online survey
(Widiasih et al., 2022)	Qualitative	13 parents	Interviews
(Yadav, 2022)	Quantitative	164 respondents	Ad hoc questionnaire
(Zheng et al., 2022)	Quantitative	781 students	Ad hoc online questionnaire
(Albano et al., 2021)	Qualitative	44 teachers	Essays
(Alghamdi & Al-Ghamdi, 2021)	Qualitative	20 teachers	Journal entries
(Alkinani, 2021)	Mixed	50 teachers, 50 parents, and 100 students	Ad hoc online survey and interviews
(Almarashdi & Jarrah, 2021)	Quantitative	580 students	Ad hoc online questionnaire
(Almeida et al., 2021)	Qualitative	2 administrators, 2 teachers, and 64 students	Open-ended question ad hoc questionnaire, semi-structured interviews, and observations
(An et al., 2021)	Mixed	120 teachers	Ad hoc online survey and interviews
(Annamalai, 2021)	Mixed	131 students	5-item ad hoc online questionnaire and interviews
(Aslan et al., 2021)	Qualitative	18 teachers	Semi-structured interviews
(Balaganesh et al., 2021)	Quantitative	150 teachers	Ad hoc online questionnaire
(Bharaj & Singh, 2021)	Qualitative	1 administrator, 1 teacher and 1 parent	Unstructured interviews

Citation	Research method	Sample	Measurement - Research tools
(Briesch et al., 2021)	Quantitative	1,002 caregivers	Ad hoc survey
(Budnyk et al., 2021)	Quantitative	114 teachers	Ad hoc questionnaire
(Cadamuro et al., 2021)	Quantitative	83 teachers and 486 students	2 ad hoc online questionnaires, a 24-item one for students and a 21-item one for teachers
(Çakmak & Kaçar, 2021)	Qualitative	20 teachers	Semi-structured interviews
(Centonze et al., 2021)	Quantitative	157 teachers	18-item ad hoc questionnaire
(Chen, 2021)	Qualitative	42 teachers	Interviews
(Cui et al., 2021)	Quantitative	1,008 parent-student pairs	16-item ad hoc questionnaire
(D'Isanto & D'Elia, 2021)	Quantitative	102 teachers	28-item ad hoc questionnaire
(Dedić & Jokić, 2021)	Quantitative	920 students	Ad hoc online survey
(Demir et al., 2021)	Mixed	189 teachers	21-item ad hoc online questionnaire, open-ended questions and the Distance Education Attitude Scale (Agir, 2008)
(Drijvers et al., 2021)	Quantitative	1,719 teachers	21-item ad hoc online questionnaire
(Drvodelić & Domović, 2021)	Quantitative	1,205 parents	24-item ad hoc online questionnaire
(Drvodelić et al., 2021)	Quantitative	1,205 parents	24-item ad hoc online questionnaire
(Duroisin et al., 2021)	Mixed	500 teachers	139-item ad hoc online questionnaire and observations
(Faccia et al., 2021)	Mixed	21 teachers	Ad hoc survey including open-ended questions
(Flynn et al., 2021)	Mixed	2,733 parents and 1,189 students	Ad hoc questionnaire including open-ended questions
(Friskawati et al., 2021)	Quantitative	71 teachers	The Physical Education Teachers' Subjective Theories Questionnaire (PETSTQ) (Kretschmann, 2015)
(Fujita et al., 2021)	Quantitative	207 teachers	Two ad hoc surveys, an 8-item one and a 22-item one
(Gobbi et al., 2021)	Quantitative	622 teachers	Ad hoc online questionnaire
(Hadriana et al., 2021)	Quantitative	309 administrators	45-item ad hoc online questionnaire adapted from Amtu (2011) and Terry et al. (2005)
(Howley, 2021)	Qualitative	10 teachers	Photovoice and interviews
(Hysaj, 2021)	Quantitative	98 teachers	2 ad hoc surveys
(Ivaniuk & Ovcharuk, 2021)	Quantitative	1,463 teachers	Ad hoc online questionnaire
(Ivanković & Igić, 2021)	Mixed	465 parents	Ad hoc survey including open-ended questions
(Jiang et al., 2021)	Mixed	95 students	Test scores and interviews
(Jimoyiannis et al., 2021)	Mixed	694 teachers	Ad hoc online questionnaire including

Citation	Research method	Sample	Measurement - Research tools
			open-ended questions
(Jogezai et al., 2021)	Quantitative	252 teachers	Ad hoc online questionnaire
(Jovanovic & Dimitrijevic, 2021)	Mixed	122 teachers	Ad hoc questionnaire with 40 closed questions and 4 open-ended ones
(Kaličanin et al., 2021)	Mixed	157 students	16-item ad hoc questionnaire including open-ended questions
(Khanna & Kareem, 2021)	Qualitative	97 teachers	Photovoice
(Kim et al., 2021)	Qualitative	8 teachers	Semi-structured interviews
(Kirsch et al., 2021)	Mixed	1,773 students	Ad hoc online questionnaire including open-ended questions
(Kiss et al., 2021)	Quantitative	143 teachers	19-item ad hoc questionnaire
(Kochan, 2021)	Qualitative	114 students	21-item ad hoc online questionnaire with open-ended questions
(Korcz et al., 2021)	Mixed	1,148 teachers	Ad hoc online survey including open-ended questions
(Kundu & Bej, 2021)	Mixed	200 teachers	Ad hoc online survey and interviews
(Ladendorf et al., 2021)	Quantitative	132 teachers	50-item ad hoc online survey
(Lee et al., 2021)	Quantitative	268 students	Ad hoc online survey and interviews 50-item ad hoc online survey Ad hoc online questionnaire, Brief Resilience Scale (BRS) (Smith et al., 2008), and Hemingway Measure of Adolescent Connectedness (Karcher, 2001)
(Lenka et al., 2021)	Quantitative	1,155 students	Ad hoc questionnaire
(Leproni, 2021)	Quantitative	100 teachers	13-item ad hoc online survey
(Levpušček & Uršič, 2021)	Quantitative	495 parents	Two ad hoc online questionnaires
(Liao et al., 2021)	Qualitative	8 teachers	Audio recordings and documents from the focus group
(López-Fernández et al., 2021)	Quantitative	174 teachers	11-item ad hoc online survey
(Ma et al., 2021)	Quantitative	668 parents	62-item ad hoc questionnaire
(Ma et al., 2021)	Quantitative	833 students	65-item ad hoc online questionnaire
(Mabrur et al., 2021)	Quantitative	85 students	12-item ad hoc questionnaire
(Manca & Delfino, 2021)	Mixed	232 teachers, 564 parents, and 963 students	School management system data and ad hoc survey
(Manĕnová et al., 2021)	Qualitative	6 administrators	Semi-structural interviews
(Maras, 2021)	Qualitative	15 parents	Semi-structured interviews
(Martins et al., 2021)	Qualitative	2 teachers, 2 parents, and 2 students	Interviews
(Miguel et al., 2021)	Qualitative	5 teachers and 10 pairs	Interviews

Citation	Research method	Sample	Measurement - Research tools
		of students and parents	
(Moldavan et al., 2021)	Qualitative	10 teachers	Interviews
(Moorhouse & Wong, 2021)	Mixed	73 teachers	Ad hoc questionnaire and interviews
(Ozamiz-Etxebarria et al., 2021)	Quantitative	1,633 teachers	Ad hoc questionnaire based on DASS-21 (Ruiz et al., 2017)
(Petek, 2021)	Quantitative	348 teachers	Ad hoc online questionnaire
(Polikhun et al., 2021)	Quantitative	348 teachers, 49 students, and 36 parents	Ad hoc online survey
(Potyrała et al., 2021)	Qualitative	18 administrators	Interviews
(Prasetyo et al., 2021)	Quantitative	500 students	32-item ad hoc survey
(Purnomo et al., 2021)	Mixed	10 teachers	Ad hoc online questionnaire
(Ristivojevic, 2021)	Mixed	220 teachers	Ad hoc questionnaire including open-ended questions
(Russo et al., 2021)	Mixed	82 teachers	Ad hoc online questionnaire including open-ended questions
(Samawi, 2021)	Quantitative	10 teachers	54-item ad hoc questionnaire
(Sánchez et al., 2021)	Qualitative	236 parents	Open-ended question ad hoc questionnaire
(Santos et al., 2021)	Mixed	245 teachers	Ad hoc survey
(Scarpellini et al., 2021)	Quantitative	2,149 parents	Ad hoc online survey
(Schuck et al., 2021)	Qualitative	11 teachers	Structured online interviews
(Seabra, Abelha, et al., 2021)	Quantitative	203 parents	Ad hoc online survey
(Seabra, Teixeira, et al., 2021)	Qualitative	305 teachers	Ad hoc questionnaire including open-ended questions
(Shamir-Inbal & Blau, 2021)	Qualitative	133 teachers	Open-ended question ad hoc questionnaire
(Silva & da Silva, 2021)	Qualitative	6 teachers, 5 parents, and 6 students	Semi-structured interviews
(Šimková, 2021)	Qualitative	12 parents	Semi-structured interviews
(Simonova et al., 2021)	Qualitative	272 students	Ad hoc question with 8 open-ended questions
(Singh et al., 2021)	Quantitative	203 teachers	Ad hoc online survey and interviews
(Smetackova & Stech, 2021)	Quantitative	2,528 parents	80-item ad hoc online questionnaire
(Sofianidis et al., 2021)	Mixed	322 students	Ad hoc online questionnaire including open-ended questions
(Stajic & Ivanovic, 2021)	Quantitative	222 students	Ad hoc online survey
(Štibi et al., 2021)	Quantitative	178 teachers	Ad hoc questionnaire
(Stojkovic & Jelic, 2021)	Qualitative	110 students	Semi-structured interview
(Sumarsono et al., 2021)	Quantitative	110 teaches	Ad hoc online questionnaire
(Surianshah, 2021)	Quantitative	233 students	Ad hoc online questionnaire
(Svobodova et al., 2021)	Qualitative	8 teachers	Semi-structured interviews

Citation	Research method	Sample	Measurement - Research tools
(Szpunar et al., 2021)	Quantitative	5,022 parents	Ad hoc online questionnaire
(Tay et al., 2021)	Qualitative	8 teachers	Interviews
(Timmons et al., 2021)	Qualitative	25 teachers and 11 parents	Semi-structured interviews
(Unger et al., 2021)	Qualitative	9 administrators, 23 teachers, 39 parents, and 13 students	Online interviews
(Usca et al., 2021)	Mixed	559 teachers	Ad hoc survey including open-ended questions
(Velasco et al., 2021)	Mixed	63 teachers	Ad hoc online questionnaire including open-ended questions
(Volodymyrovych et al., 2021)	Quantitative	15 teachers and 120 students	Ad hoc online questionnaire
(Watermeyer et al., 2021)	Mixed	1,553 educators and teacher trainers	Ad hoc questionnaire including open-ended questions
(Wong et al., 2021)	Quantitative	595 teachers	Ad hoc online survey
(Xu, 2021)	Quantitative	1,270 students	Ad hoc questionnaire
(Yan et al., 2021)	Quantitative	1,170,769 students	Ad hoc online survey
(Yüksel et al., 2021)	Qualitative	7 teachers and 7 parents	Interviews
(Zekaite et al., 2021)	Qualitative	16 administrators, 33 teachers, 38 parents, and 26 students	Interviews
(Zhao et al., 2021)	Qualitative	4 teachers, 5 parents, and 5 students	Interviews
(Züchner & Jäkel, 2021)	Quantitative	1,128 students	Ad hoc online survey
(Albó et al., 2020)	Quantitative	67 teachers	Ad hoc survey adapted from Self-reflection on Effective Learning by Fostering the use of Innovative Educational Technologies (SELFIE) (European Commission, 2018)
(Alfaro et al., 2020)	Qualitative	16 teachers	Open-ended question ad hoc questionnaire and interviews
(Alper, 2020)	Qualitative	71 teachers	Semi-structured interviews and observations
(Anderson & Hira, 2020)	Qualitative	6 teachers	Interviews
(Ayda et al., 2020)	Qualitative	10 teachers	Interviews
(Babic et al., 2020)	Quantitative	138 teachers	Ad hoc online questionnaire
(Babinčáková & Bernard, 2020)	Quantitative	17 teachers and 78 students	2 ad hoc questionnaires
(Brom et al., 2020)	Mixed	9,810 parents	21-item ad hoc online questionnaire including open-ended questions
(Çelík & Íşler, 2020)	Qualitative	36 students	Interviews
(Code et al., 2020)	Qualitative	42 teachers	Open-ended question ad hoc questionnaire
(Demir & Özdaş, 2020)	Qualitative	44 teachers	Open-ended question ad hoc questionnaire

Citation	Research method	Sample	Measurement - Research tools
(Dias-Trindade et al., 2020)	Quantitative	300 teachers	Ad hoc online survey
(Erümit, 2020)	Qualitative	12 students	Semi-structured interviews
(Ferraro et al., 2020)	Quantitative	83 students	11-item ad hoc questionnaire
(Gokuladas & Baby Sam, 2020)	Quantitative	1,174 teachers	Ad hoc online questionnaire
(Gören et al., 2020)	Quantitative	2,111 administrators, 18,031 teachers, 127,177 parents, and 120,524 students	4 ad hoc questionnaires
(Ionescu et al., 2020)	Quantitative	211 teachers, 152 parents and 208 students	16-item ad hoc questionnaire
(Lau & Lee, 2020)	Quantitative	6,702 parents	Ad hoc online survey
(Lie et al., 2020)	Mixed	18 teachers	Ad hoc survey and interviews
(Lyu et al., 2020)	Qualitative	11 teachers and 7 pairs of grandparents and students	Interviews
(Mailizar et al., 2020)	Quantitative	159 students	Ad hoc online questionnaire
(Mikušková & Verešová, 2020)	Quantitative	379 teachers	Ad hoc questionnaire, the Positive and Negative Affect Schedule (PANAS) (Watson et al., 1988), and the Big Five Inventory (BFI-2) (Halama et al., 2020)
(Nemec et al., 2020)	Quantitative	110 students	5-item ad hoc online questionnaire
(Peñuelas et al., 2020)	Quantitative	44 teachers and 116 students	Ad hoc questionnaire
(Pocinho et al., 2020)	Quantitative	219 teachers	Ad hoc questionnaire
(Simpson, 2020)	Mixed	155 parents	Ad hoc online survey including open-ended questions
(Wang et al., 2020)	Mixed	1,450 teachers	Ad hoc questionnaire and observations

Table 3. Main Findings and Conclusions of the Related Studies

Citation	Main findings
(Aladsani et al., 2022)	The educational stakeholders assessed that educational outcomes, societal and life aspects, parental involvement, and teaching landscape not only were affected by the rapid transition to online learning but also influenced it. The participants had mixed viewpoints and attitudes regarding distance education and learning achievements and questioned its quality. Stakeholders' digital competences increase and time saving due to less commute arose as the main benefits. Technology became the backbone of the educational process and students became the center of it. Therefore, changes in the management of classrooms, assessment, and practices used were observed. Parents' active involvement to support their children's educational activities led to them being overloaded with additional responsibilities and feeling more stressed. Parents expressed concerns regarding online privacy and security. Through collaboration, the relationship among parents, teachers, and school was reinforced.
(Alalwani, 2022)	Parents believed that educational and socio-economic benefits (e.g., saving school fees, families spending more time together, digital skill cultivation) can be yielded through the use of online learning. Long hours spent on digital devices, poor Internet connection, lack of students' digital competencies, and teachers' ineffective class management emerged as the main disadvantages.
(Alarabi et al., 2022)	Both teachers and students were fond of online learning. Nonetheless, statistically significant differences in attitudes were observed between students of public and private schools but not between teachers. A large number of both teachers and students received appropriate training but the ones that did not experienced more challenges. Students believed that learning through computers and communicating through social networks was more interesting and made it easier for them to study and carry out tasks. They quoted that the material used was satisfactory but the interactions were unexciting and the whole process tiresome. Teachers also believed that it was interesting to use social networks and computers to teach but they assessed it as less enjoyable and more frustrating to deal with. Despite this fact, teachers tried their best to create adequate learning material.
(Al-Bargi, 2022)	Although teachers identified several advantages of online teaching, most of them questioned the accuracy and effectiveness of emergency remote teaching. Teachers regarded cheating as the main unenforceable issue of remote online assessments. Despite this fact, they believed that online learning can provide new learning opportunities and yield positive outcomes in the future.
(Almaiah et al., 2022)	System, content, and service quality, infrastructure, management, training, user awareness, and security concerns influenced the use of online educational platforms.
(An et al., 2022)	Students learning motivation and mindsets, performance, and critical thinking was influenced by their attitude toward the significance of peer interaction during online learning. Students' self-efficacy, higher-order thinking, and problem-solving skills were also correlated with their learning motivation. Teachers' role in encouraging students to interact more with their peers using different methods, such as social media, was pointed out.
(Anh, 2022)	Most teachers were favorable toward emergency remote teaching as a means to continue providing education for students during such unprecedented times. The increase of digital divide arose as the main drawback. The need to provide teachers with appropriate training, to acquire and provide the required amenities and equipment, and to develop effective facilities and infrastructure was highlighted.
(Arco, 2022)	Distance education has both merits and drawbacks for teachers and students. Social media can be used as a means to promote social inclusion and facilitate communication in online learning.

(Aslan et al., 2022)	Students characterized school closure during COVID-19 as an unhealthy and unusual event. Students' perceptions and daily routines have drastically changed. Due to these changes, they have experienced positive and negative emotions. Students had mixed perspectives regarding online learning and they had to develop their own personal coping strategies.
(Avdiu, 2022)	Teachers expressed positive attitudes toward online learning and highly valued the use of music to teach language courses. Teachers did not face any difficulties in integrating music and songs in distance education which, in turn, increased students' interest and engagement.
(Babosová et al., 2022)	Teachers put extra effort into creating online environments that are close to face-to-face ones. Teachers with longer teaching experience felt more stressful during remote teaching. Primary education teachers believe that blended learning will be more widely used while secondary education teachers want to preserve face-to-face only teaching.
(Bautista Jr et al., 2022)	Most teachers regarded distance education as a less viable and effective learning method in comparison to face-to-face learning. Additionally, they believed that students learn less in online learning environments and academic dishonesty occurs more easily. Teachers were satisfied with the support their received from their school. Despite this fact, they believed that with more training and support, they will be able to further maximize the benefits of online learning.
(Belousova et al., 2022)	Students stated that they would not prefer to continue studying in distance mode but would rather return to face-to-face learning. Despite this fact, they had a positive attitude toward online learning and their learning motivation did not change.
(Bozkurt & Peker, 2022)	Although teachers assessed that there are some benefits to be yielded by adopting online learning, they expressed negative feelings about it. They believed that it was an inefficient method for teaching more practical subjects due to its limitations and barriers. Additionally, even though they were satisfied with their teaching performance, they were discontented with students' learning motivation and academic performance.
(Burleigh et al., 2022)	Teachers' digital competences increased during distance education and as a result, their self-confidence in using ICT improved. Schools blocked students from participating in online classes if they were not able to pay the fees, did not prove adequate support, and conducted exorbitant salary cuts. Excessive parent inference, technical distractions as well as a lack of social interactions, resources, focus, and physical development were the main challenges that students faced.
(Chua & Bong, 2022)	Teachers were not prepared to offer inclusive education in online learning activities and displayed barely sufficient levels of affective awareness, cognition, behavior, and attitude. A lack of teacher training, teachers' online teaching experience, school support and parents' digital literacy was pointed out.
(Daşdemir & Cengiz, 2022)	Teachers viewed distance education positively and school administrations applied practices to increase the communication among parents, students, and teachers. Teachers were unable to determine the degree of student comprehension.
(Duzgun, 2022)	Teachers' working environment and level of education affected their viewpoints regarding the virtual classrooms and the conveyance of emotions. Particularly, teachers of private schools assessed the platforms used more favorably in comparison to public school teachers. Most teachers used the same application to carry out their lessons and communicate. Teachers of younger students believed that it was easier for them to understand students' emotions through virtual classroom compared to middle school and high school teachers. Teachers who had undergraduate and/or postgraduate degrees believed that it was easier to recognize students' emotion transfer within virtual classrooms than those with associate degrees.

(Eadens et al., 2022)	The transition to online learning affected K-12 school systems differently among states. Despite this fact, teachers stated that the transition to online learning had both negative and positive aspects regarding the curricula, strategies, methods, platforms, training programs, and students' behavior. Teachers' teaching experience influenced their perceived level of preparedness to teach remotely. Most teachers believed that they took the transition to online teaching and learning seriously and their effort to provide quality teaching led to their knowledge and instructional skills being improved. Additionally, they quoted that they satisfactorily met the requirements of distance education.
(Faheina & Silva, 2022)	Poor Internet access and connection for students and the difficulties that teachers had to overcome by adapting their practices affected the pre-existing social execution processes, the quality of education, and the teaching uncertainty.
(Guzzo et al., 2022)	Despite several challenges remaining unsolved, teachers adapted their practices and were proactive in finding effective strategies to provide high quality teaching. Teachers highly regarded the flexibility and ubiquitous learning opportunities that distance education brings and stated that they will incorporate some of its didactic strategies to enrich and complement their face-to-face lessons. They believed that adopting blended learning in the future will be the most effective way of teaching. The need to promote and ensure equitable and inclusive education for everyone was highlighted.
(Hagenaars et al., 2022)	Teachers expected parents to be as much involved in the educational process during online learning as they were in traditional learning. Despite this fact, parents had difficulty in effectively supporting their children. By familiarizing themselves with the difficulties that families experienced, teachers can improve their expectations and adapt their practices accordingly.
(Harefa & Sihombing, 2022)	Due to poor Internet connection and technical difficulties, students in remote areas assessed online learning as less effective. The need for teachers to reevaluate their practices to accommodate student needs was pointed out.
(Ibáñez et al., 2022)	Teachers changed their practices during emergency remote teaching and incorporated some of its elements in face-to-face learning afterwards. Additionally, they were concerned about students and highlighted the need for appropriate training programs in distance teaching.
(İlhan et al., 2022)	The gender and educational level of teachers did not affect their attitudes toward online formative assessment (AOFA). Teachers' AOFA was negative related to the number of students they taught and positive to the number of active students they had.
(Iskandarova et al., 2022)	Students were not satisfied with online learning and preferred face-to-face learning over it. Their satisfaction with online learning quality was associated with their instructors' enthusiasm, their interaction and collaboration, and the use of different educational material and sources. Students experienced various problems regarding technical issues, lack of social interactions, decreased levels of concentration, and poor learning conditions at home.
(Izmagambetova et al., 2022)	Teachers stated that distance education was overall less advantageous for student assessment. The main challenges were associated with technical, method, student, and communication problems. Teachers highlighted the need for training and support to address them.
(Jamiludin & Darnawati, 2022)	Students preferred traditional learning to distance education and the material to be taught in person. They believed that it is more comfortable to learn in classrooms where they can interact with their peers and teachers. Additionally, they preferred teachers using diverse teaching methods and promoting an active learning environment as well as carrying out assignments after and not during the lesson. Students' home conditions, lack of equipment, and poor Internet connection affected

	their online learning experience. Finally, teachers used different e-learning applications and were favorable toward asynchronous learning.
(Jothinathan et al., 2022)	Teachers' high ICT efficacy and knowledge resulted in low burnout. The topics that emerged were exclusion strategies, prolonged distance teaching at home, parent involvement, and inclusion attitude. Teacher prior to the pandemic inclusive practices and ICT knowledge were insufficient to support inclusive teaching during emergency remote teaching. The need for more effective approaches that promote inclusive education in online learning environments was highlighted.
(Junaidi et al., 2022)	Teachers' lack of technical skills and knowledge to integrate ICT in their teaching, teaching conditions, and parents' interference led to teachers being reluctant to conduct remote teaching. Despite this fact, they tried to cope with and overcome the challenges they faced to provide high quality teaching. The need for more support and continuous training was pointed out.
(Kanibolotska et al., 2022)	Teachers assessed distance learning positively. As their experience of online learning increased, their self-confidence and attitude toward it improved.
(Kantos et al., 2022)	Suitability, support and communication, education events, and evaluation of practices during distance education were the main themes that emerged. All parents had access to the Internet, online learning was a suitable method to teach students who all had a smartphone. Despite this fact, students did not actively participate and attend classes. Both parents and students believed that face-to-face learning is more effective than distance education.
(Karaman & Seferoğlu, 2022)	Parents assisted their children by preparing their learning environments, encouraging and motivating them, providing them with feedback, and controlling their homework. Parents experienced technical issues, such as poor Internet connection and lack of equipment as well as administrative problems, such as teachers' unpreparedness and unwillingness, lack of communication, and decreased number and length of lessons.
(Klosky et al., 2022)	Students learning achievement and academic behavior were reduced during remote learning. Technological issues, inadequate digital literacy, and poor Internet connection were the main challenges faced. Parents and students of vulnerable groups had a more difficult time adapting and overcoming the challenges. The need for institutes to provide safe and secure face-to-face learning during such demanding times was pointed out.
(Kosmas et al., 2022)	Teachers' attitudes and experiences of distance learning affected their willingness to incorporate some of its elements into their face-to-face lessons. The challenges they faced had a moderately negative impact on their attitude. The majority of teachers were favorable toward online learning and stated that they would enrich their traditional teaching with it. Additionally, most teachers use digital teaching practices more frequently to manage their classrooms, assign tasks, and communicate more effectively. Secondary education teachers adopted digital technologies to a greater extent than those of primary education as their students were more accustomed to and competent in digital technologies and required less parental guidance and support. The need to invest in effective training programs and teachers' professional development and the importance of the digital transformation of education were highlighted.
(Kuzembayeva et al., 2022)	The topics emerged were teachers' preparation, challenges faced, support received, recommendations, and resources used as well as students' interaction, and stakeholders' perceptions and attitudes. The pedagogical practices used were assessed as efficient and teachers tried to promote students' creativity and critical thinking. Students showcased eagerness and motivation to participate in online learning. The positive support that teachers received was highlighted.
(Lee, 2022)	Administrators and teachers showcased strategic leadership practices which prioritized

disadvantaged students and their families. Despite this fact, inequities in school learning did arise. The need for policies to be enacted quickly to address educational inequalities during such demanding times was highlighted. The COVID-19 pandemic exposed some of the limitations and weaknesses of the existing school practices and policies. Hence, the necessity to rethink teaching and learning models and develop practices, approaches, and policies that improve students' learning quality while also taking parents' considerations into account emerged.

(Leech et al., 2022) Teachers highlighted the lack of student engagement, the loss of face-to-face teaching, and adjustment of the curriculum as the main difficulties during online learning. Differences were observed among grade levels with elementary teachers having more difficulty in handling the diverse parent attitudes.

(Li et al., 2022) Students had mixed feelings about the effectiveness of online learning when compared to traditional face-to-face learning. The majority of them were satisfied with the online education they received during the pandemic. Organizational, relational, and individual factors affected students' satisfaction and attitudes toward distance education.

(López-Estrada et al., 2022) Teachers were able to successfully transition to online learning. Several changes in teaching practices and routines became normalized. Teachers' self-efficacy and pedagogical decision-making processes improved. Additionally, their perception of online learning affected their teaching activities selection and performance.

(Lu & Han, 2022) Teachers' attitude toward online assessment and their preparedness for online teaching were positive predictors of their perceptions regarding their students' digital competence development. Younger teachers with less experience felt more confident in using ICT and managing their classrooms and were more satisfied with their teaching competence. The need to provide teachers with opportunities for professional development was highlighted.

(Manguilimotan et al., 2022) Parents' profile significantly affected their attitude toward online education. They were able to attend online classes with their children and had no difficulty in using different technological applications. Poor Internet connectivity emerged as the main barrier that parents had to overcome.

(Maydiantoro et al., 2022) Teachers believed that the way online learning was implemented during the COVID-19 pandemic was ineffective. The existing structure of the curricula made it difficult to transition to online learning and adapt to the new culture of online instruction. The need for the curricula to be reformed to address the new educational requirements was highlighted.

(Mihova et al., 2022) Most parents regarded that online learning did not support the learning process and it led to decreased learning outcomes in comparison to face-to-face learning.

(Mutluer & Bavli, 2022) Students' economic and social factors affected their online learning experiences. These factors affected teachers and students differently. The financial factors were related to the acquisition of the necessary equipment and learning material. In many cases due to low awareness, parents did not prioritize them. Socio-economic disadvantages increased the digital divide gap and educational inequalities. These facts drastically affected teachers' ability to effectively plan, assess, and follow their teaching program and take students' difficulties and characteristics into account.

(Nikolopoulou & Kousloglou, 2022) Teachers deemed the support they received from schools as weak and stated that there was a lack of clear vision toward online learning. Most teachers perceived online teaching positively and quoted that clear instructions, communication, and goals as well as encouragement were key aspects in improving students' learning experience. Teachers' gender and experience had a minor effect on their beliefs.

(Nikolopoulou, Although teachers' feelings about distance education were initially negative, the more their

2022)	experiences increased the more their feelings improved. The lack of training and resources emerged as the main challenges while students' familiarization with technology and their ability to keep learning as the main benefits. The role of parents in the effectiveness of online learning was highlighted.
(Ober et al., 2022)	Teachers were mostly concerned about the instructional approaches adopted, access to digital resources and equipment, and the assessment and communication methods applied. The need to better support teachers and provide them with the means to get familiar with remote teaching was pointed out.
(Panadero et al., 2022)	Teachers had mixed feelings about the assessment instruments used with some retaining their traditional assessment approaches while others adapting them. Additionally, most teachers changed their assessment criteria and were more flexible. The importance of providing frequent feedback was pointed out.
(Polat & Kesik, 2022)	The diverse tools and material used, the role of parents in homework, teacher-parent communication and interaction, and parents' viewpoints regarding distance education were the themes emerged. Parents did not have difficulty in supporting online learning, communicated with teachers using mobile applications, and used different digital devices and approaches to motivate and assist their children. Teachers integrated additional educational resources besides those specified by their school to improve students' experience.
(Quintana & de León, 2022)	Families experience several difficulties during distance education. Most difficulties were associated with technical issues and lack of adequate equipment or Internet connection. The need to eliminate digital divide and provide equal training opportunities was highlighted.
(Rayhana & Al-Batayha, 2022)	Students were neutral regarding distance education and gender significantly affected their attitude toward it. The need for curricula and educational resources to be adapted, technical issues to be addressed and for more effective evaluation methods to be created was pointed out.
(Reynolds et al., 2022)	Home conditions and school level affected distance education. The potential long term societal level implications for the digital and social inequalities experience during emergency remote teaching were highlighted. Students' increasing their digital competencies emerged as the main benefit.
(Ringer & Kreitz-Sandberg, 2022)	Students had mixed feelings about online learning and the changes it brought about in terms of routine, flexibility, and structure. The main difficulties identified were the lack of encouragement, deep discussions, and group organization as well as the constant comparison between classmate performances.
(Robinson et al., 2022)	During emergency remote teaching teachers experienced increased anxiety and stress related to their concerns over students' wellbeing, teaching quality, their professional and personal roles, and their frustration with administrations and institutional entities about safety measures. The need to provide effective training and support to teachers to avoid teacher shortages, deterioration of their mental health, and worse learning outcomes was highlighted.
(Samsen-Bronsveld et al., 2022)	Parents quoted that the lockdown and emergency remote teaching negatively affected students' learning motivation, wellbeing, and need satisfaction. They also assessed that non-gifted students' autonomy and relatedness with their classmates negatively affected them while gifted students' competence helped them cope with the new circumstances.
(Senft et al., 2022)	Teachers noticed reduced student performance, concentration and learning motivation. Increased workload as well as physical and mental demands were the main challenges that teachers experienced.
(Seynhaeve et al.,	Students' perception regarding emergency remote teaching varied. The value that students put on

2022)	social interaction and the role of teachers was a determining factor.
(Songkram & Osuwan, 2022)	Teachers' self-efficacy in using ICT affected their perceived ease of use and usefulness of online learning which, in turn, correlated with their attitudes toward distance education. Their behavioral intentions to use online platforms were influenced by their subjective norms and attitudes.
(Stefanidou et al., 2022)	Most students assessed distance education and regarded home conditions negatively, poor Internet connection, lack of social interactions and communication, and decreased concentration and hands-on activities as its main drawbacks. The increase of multimedia use was the main benefit of online learning as it helped students comprehend the subject better.
(Tangonan, 2022)	Students' performance, enthusiasm, and motivation regarding online learning were satisfactory. Their attitudes toward online learning were positive. Students age, gender, and grade affected their overall performance, motivation, and anxiety.
(Thurm et al., 2022)	Students' preference for face-to-face learning was clear but they also viewed online learning positively and highly rated the quality of education they received. They regarded the lack of teachers' feedback and of a variety of didactical approaches used as some of the drawbacks. Students' existing interest in subjects taught, their appreciation of teachers' effort, and their home conditions affected their perception and experiences of online learning.
(Timmons et al., 2022)	Teachers and parents were actively involved in the educational process and dedicated to support students despite the challenges they had to overcome. Parents quoted that they valued teachers' efforts and their willingness to be more flexible and were aware of the increased demands that they had to satisfy. Teachers highlighted the need for parents and families to be better supported. Stakeholders taking on new roles and cultivating their digital competencies were the main benefits of online learning while communicating was the main challenge. The main themes that arose were the role of administration and teachers, parents' active involvement, the need to focus on formative assessment, curriculum and pedagogy, and suggestions for the future. The need for administrative support and guidance, reformation of teaching and learning activities, and focus on student-centered approaches was pointed out.
(Tzankova et al., 2022)	Online learning allowed students to experience a more flexible and autonomous way of learning. Increased workload and stress, lack of organization and focus, and inhibited relationships with peers and teachers were the main issues that arose. The need to promote collaborative learning and to enhance teacher-student interaction and communication was highlighted.
(Uysal & Kıvanç Çağanağa, 2022)	Teachers indicated problems related to online classes, organization and planning, students, and technology. Teachers expressed the need for mixed learning environments and the conduct of training programs to increase their digital competences.
(Villa et al., 2022)	Due to the rapid transition to online learning teachers had to adapt their teaching practices and experienced an increased workload which led to them feeling more tired, anxious, and stressed. Teachers' effort to offer high quality teaching during such demanding times was characterized as an extraordinary professional and personal challenge that they had to overcome.
(Weltrowska et al., 2022)	Teachers expressed mixed feelings regarding distance learning. The cultivation of digital competencies and saving time and money arose as the main benefits while the main disadvantages were the decrease in social interactions, teaching quality, and physical activity and the increase in health issues and time spent on screens.
(Wharton-Beck et al., 2022)	The main challenges that arose were related to the digital divide, the online instructional practices adopted, the communication among stakeholders, and the shortage of staff. The increase in visionary leadership, community partnerships, and innovative instructional models arose as the main

advantages.

(Whitley et al., 2022)	Despite their lack of confidence in using ICT, parents actively engaged and supported their children's remote learning. Their self-efficacy was correlated to the social-emotional support they received from schools. The need for more effective communication and collaboration between parents and teachers was highlighted.
(Widiasih et al., 2022)	The main concerns that parents expressed were students' online behavior and internet addiction as well as the negative impact of online learning on teaching quality and the hindrance of cognitive development. The need for training programs to teach students proper online behavior and practices and for developing new teaching strategies that take students' requirements into account was highlighted.
(Yadav, 2022)	Respondents quoted that online learning not only improved their academic knowledge but also their general knowledge. The need for appropriate training and technical support as well as for new educational policies was highlighted.
(Zheng et al., 2022)	Many students were satisfied with their online learning experience and regarded it as an effective learning mode. The majority of students preferred face-to-face learning while only a few preferred online learning. Student satisfaction, preferences, and perceived effectiveness were positively associated with student-teacher communication and interaction. School environment and home conditions greatly influenced students' preference for online learning.
(Albano et al., 2021)	Teachers reported several concerns about distance education and highlighted the need to reconstruct and adapt their practices and methods. Teachers' viewpoints about the school of the future have changed. Particularly, they envision a school where learning activities will be more reasoning and competency oriented, where technology will play a vital role, and where summative assessment will be reduced or even disappear.
(Alghamdi & Al-Ghamdi, 2021)	Teachers were willing to adapt their pedagogical practices, improve their skills, and reconsider their role as 21stcentury educators during distance learning. Teachers commented upon the fact that students had to embrace that their country was depending on the cooperation of everyone. Additionally, they mentioned the technical issues they faced and the instructional strategies they used.
(Alkinani, 2021)	Students were comfortable in using ICT and received enough support. Student believed that face-to-face learning cannot be replaced by distance education. Due to the lack of training, teachers experienced several difficulties while transitioning to online learning. Parents had negative attitudes toward the effectiveness of distance education and mostly preferred traditional learning. The fact that parents were not trained and ready to use ICT for educational purposes was pointed out.
(Almarashdi & Jarrah, 2021)	Students had mixed feelings concerning their distance learning experience. Students negatively regarded the long time spent on digital devices and the lack of social interaction. Students were neutral regarding the opportunity to learn from distance in the future.
(Almeida et al., 2021)	Private schools adapted to online learning more easily in terms of technological context. Regarding the methodologies followed, online teaching was characterized by excessive content and tasks and a lack of social interactions. The main challenge that public schools faced was the inequality regarding digital equipment and access to the Internet which led to a decrease in students' attendance and participation.
(An et al., 2021)	Lack of face-to-face interactions and students' learning motivation, participation, and active involvement as well as inadequate equipment were the main challenges of online learning. Additionally, students' and teachers' wellbeing and work-life balance were of great importance.

Teachers also commented upon the need to learning new technologies as a difficulty. The need for better plans and communication, improved technology access, and creation of training programs was pointed out. Teachers were uncertain about the "new normal", had concerns about hygiene and social distancing, suggested smaller class sizes with more flexible schedules, and believed that the use of online learning and blended learning would increase.

(Annamalai, 2021)   Students were not adequately prepared to transition to distance education. Cognitive overload, social presence, discipline, repository-based teaching, and technology comfort emerged as the main issues that students had to face. Students highlighted the need for teachers to use more standardized applications, have fixed schedules, and provide more interactive experiences. The need for more interactive learning experiences in distance education was highlighted.

(Aslan et al., 2021)   Teachers did not prefer to design their own learning material but would rather use premade material. Teacher-centered activities were mostly applied and it was difficult to achieve affective and psychomotor objectives. Students' lack of interest, communication and participation along with tight time schedule and insufficient course lengths emerged as the main challenges. Finally, teachers were not able to use valid evaluation tools to assess student performance.

(Balaganesh et al., 2021)   Most teachers used mobile devices to conduct lessons and opted to use Zoom as their preferred platform. Teachers' perspectives toward virtual teaching were associated with their overall teaching experience. Additionally, despite the majority of teachers having insufficient knowledge regarding the integration and use of ICT in education, they positively assessed online learning.

(Bharaj & Singh, 2021)   The educational community worked as a whole to address the issues emerged. Parents acknowledged the effort made by teachers and administrators to assist in the continuation of their children's education. Administrators were more flexible and willing to assist teachers. The importance of collaboration among stakeholders was pointed out.

(Briesch et al., 2021)   The overall remote schooling experiences and students' educational activities varied drastically. Lack of time and knowledge was the main barrier that caregivers experienced while assisting in schooling activities. Inadequate communications and support as well as lack of synchronous instruction emerged as the main difficulties students experienced.

(Budnyk et al., 2021)   Almost half of the teachers that teach in rural schools had a positive attitude toward distance education. Due to the lack of educational material, low level of digital literacy, and technical difficulties, many teachers were strongly against this form of learning and organization. The need to better support rural areas was highlighted.

(Cadamuro et al., 2021)   Multimedia was mainly used during distance education. Desktops were the least frequently used devices as teachers mostly used tablets and students used smartphones. Although students sought for more interactive lessons, they were satisfied with the quality of education. Teachers displayed a high level of self-efficacy and meta-cognitive competence. Their beliefs positively predicted their assessment of distance learning. Students' perception of the online learning environment positively predicted their view of distance education and negatively their anxiety. The need to promote positive ICT beliefs, adequate training, and promote self-efficacy was highlighted.

(Çakmak & Kaçar, 2021)   Students participated less during online learning. The necessary equipment and Internet connectivity were inadequate.

(Centonze et al., 2021)   Teachers' effort to adapt their practices and transition to online learning was highly valued. Teachers had mixed feelings regarding students' scholastic commitment. Many teachers did not prepare any specific learning activity or educational material for students with special educational needs. Difficulties in communicating with the class as a group and with each student individually

were evident. A general lack of motivation and interest was reported. The main technical difficulty was the poor and insufficient Internet connection.

(Chen, 2021)	Although novel technologies that could support teachers existed, these were not available to them. The need for more effective tools to manage lessons and communicate with students on an emotional level was highlighted. Teachers positively viewed the development of digital competencies and stated that they will integrate new technologies in their classrooms. Finally, the need for teacher training to emphasize educational technology and changing the existing philosophy of education was highlighted.
(Cui et al., 2021)	Although the learning achievements and homework completion rate of most students decreased during distance education, the majority of them were enthusiastic about it. Additionally, both students and parents were moderately satisfied with the overall experience but wanted to return to traditional learning. Gradually, their attitudes toward online learning and opinions regarding its reliability and efficiency reduced but not significantly. Parents felt more stressed and expressed many concerns and complains about their children's distance education experience. Lack of interactive lessons and teachers' proper explanation of course material, children's eyesight, student understanding of the subject taught, the decrease of students' interest and focus, and the increased workload were the main concerns of parents.
(D'Isanto & D'Elia, 2021)	Physical education was the subject that suffered the most from online learning due to the lack of physical activities. Teachers enrolled in training programs to improve their ICT skills and provide higher quality teaching. The need for training programs that support teacher development was highlighted.
(Dedić & Jokić, 2021)	Students were moderately satisfied with their online learning experience but were unfavorable toward the quality of education they received as well as the increased work load and effort required. Their interest in using digital devices and the educational status of their fathers significantly predicted their online learning satisfaction.
(Demir et al., 2021)	Teachers' personal characteristics such as age, educational level, technical knowledge, experience, and type of school affected their attitude toward distance education. The structure of courses and technical difficulties were highlighted as the main negative aspects.
(Drijvers et al., 2021)	The tools used to teach in face-to-face learning reduced substantially while the use of video conferencing tools increased. During the pandemic, teachers' self-confidence in using ICT increased. Their beliefs and experience only slightly affected their practices. The educational policies applied and the support teachers received affected the overall effectiveness of distance education.
(Drvodelić & Domović, 2021)	Parents believed that distance education improved students' self-regulated learning and digital skills. They also stated that their participating more actively in their children's education improved their family relationships. Lack of students' learning motivation and support from school as well as parents' increased workload and concerns about their children's education arose as the main issues.
(Drvodelić et al., 2021)	Parents positively assessed the effort that teachers made during emergency remote education. They stated that they felt more stressed and their performance and responsibilities were disrupted. Some parents believed that students were overloaded with assignments. Children's autonomy and parents' work status and educational level were correlated with their attitudes and increased workload. The crucial role of parents during distance learning was highlighted.
(Duroisin et al., 2021)	Differences between education levels were observed. An increase in educational inequalities caused by the lack of technical equipment and the pedagogical practices used were evident.

(Faccia et al., 2021)	Teachers adapted their strategies which were influenced by personal and interpersonal factors as well as the use of digital equipment and online platforms. Teachers' working self-efficacy was positively associated with their perception of the impact of online teaching and learning in managing their communication and relationships with their students, negatively with their colleagues, and had no relation with students' families.
(Flynn et al., 2021)	Both students and parents mostly expressed negative psychosocial impacts of schooling at home on students. Students claimed that they learned less during online learning than when in traditional classrooms due to a lack of academic engagement. In their attempt to support their children's online learning activities, parents felt increased levels of stress.
(Friskawati et al., 2021)	Teachers' experience, age, and gender greatly affected their attitudes toward online learning. Students' readiness, social interactions, digital competencies, digital resources, and classroom management were additional indicators that influenced teachers' attitude. Teachers' having a positive attitude toward the educational means they use emerged as a determining factor to the successful adoption and integration of the medium.
(Fujita et al., 2021)	Teachers' attitudes toward online learning were positive which led to their being better prepared and having more technical knowledge. They had to cope with concerns regarding how to overcome unexpected technical issues and conduct their teaching in an effective and interactive manner.
(Gobbi et al., 2021)	The results highlighted the necessity of appropriate training for primary education teachers to improve their self-efficacy and work engagement which, in turn, will help them improve the quality of teaching.
(Hadriana et al., 2021)	Planning, organization, and monitoring played a vital role in the administrators' effective management of online learning. Administrators' management was deemed efficient.
(Howley, 2021)	Although practices and strategies of other subjects were adapted and enhanced, this did not happen for physical education which was the subject most affected from distance education. Inflexible curricula and assessment, inequity in equipment and educational opportunities along with the lack of social interactions and students' emotional support were the main drawbacks observed. The need to provide teachers with training opportunities to enhance their professional development was highlighted.
(Hysaj, 2021)	Teachers had a positive attitude toward online learning and the integration of ICT. Despite this fact, they had difficulty in motivating and actively engaging their students during distance education as well as in effectively managing their class and assessing student tasks.
(Ivaniuk & Ovcharuk, 2021)	It is important to create conditions that are beneficial to students and teachers and lead to effective distance education. Many of the challenges and issues of distance and blended learning have not been completely addressed. Teachers believed that the integration of ICT was not effective enough. Internet connection, lack of digital equipment, management, single effective platform, increased workload and emotional stress during a long time period emerged as the main issues and challenges of emergency remote teaching and learning.
(Ivanković & Igić, 2021)	Parents' attitude toward online learning was mostly positive. Their age, education level, gender, and their children's grade influenced their attitudes which, in turn, affected their use of ICT. The need to standardize distance education and ensure equal opportunities and access for all students was highlighted.
(Jiang et al., 2021)	When integrating blended activities, students' attitudes, performance, and engagement improved compared to solely distance learning.
(Jimoyiannis et	Teachers perceived the pandemic as a turning point for the integration of ICT in education. The need

al., 2021)	for teachers to be appropriately trained in designing and integrating synchronous and asynchronous learning activities in both online and physical classrooms was highlighted.
(Jogezai et al., 2021)	Teachers' use of social media for educational purposes increased during the COVID-19 pandemic which, in turn, affected their attitude toward their use in online learning. Social media were emerged as an effective educational means.
(Jovanovic & Dimitrijevic, 2021)	Teachers viewed the lack of effective evaluation tools and administrative support as the main barriers. Teachers with less teaching experience found it easier to adapt their practices and overcome the challenges. The potentials of distance education to enrich regular teaching activities was highlighted.
(Kaličanin et al., 2021)	Students were satisfied with the quality of online teaching. Despite this fact, they assessed that face-to-face learning and socializing in person cannot be replaced. The gradual increase of teachers' digital competencies led to higher quality education and positively affected students' learning motivation.
(Khanna & Kareem, 2021)	The main themes that emerged were the critical role of technology, students as the main priority, a teacher for all students, and workspace infringement. Teachers managed to transition to online learning but at a cost to their personal mental health and wellness as they received little support. Teachers had to find innovative ways to teach and engage their students, look for online resources, and create appropriate material. The need to create teacher support networks was highlighted.
(Kim et al., 2021)	Teachers perceived online teaching negatively and looked forward to teaching in traditional settings as they missed their interactions and relationships with students. A lack of teachers' technical knowledge was evident.
(Kirsch et al., 2021)	Teachers integrated diverse approaches and methods during distance teaching. Parents actively supported their children. Students' communication with their teachers and the time they spent on homework varied within and between countries. The need for development and training on distance education was pointed out.
(Kiss et al., 2021)	Online learning was more difficult to be applied effectively in students of young age. Teachers considered themselves to be better prepared than both their students and institutes to transition to online learning. Many teachers believed that some activities could remain online even after the COVID-19 pandemic.
(Kochan, 2021)	Despite teachers' using different tools to carry out online lessons, students negatively assessed their efforts to effectively transition to distance education. Even though students believed that the school year was not lost as the curriculum was still covered and that it was easier for them to acquire higher grades, they generally viewed distance learning negatively and sought for more personal, engaging and interactive experiences. Having more free time, organizing one's own schedule, and selecting one's own surroundings were regarded as the main benefits of online learning. Teachers' lack of creativity, instructions, and engagement along with technical difficulties, media accessibility, increased overload of homework and educational material, and lack of social interactions with peers and teachers were the main drawbacks.
(Korcz et al., 2021)	Teachers' assessment of online teaching varied from country to country. Particularly, teachers from Kosovo and Macedonia perceived online learning negatively, Turkish teachers were neutral while teachers from Bulgaria, Croatia, and Poland assessed it positively. The lack of proper equipment at home and ICT training emerged as common challenges that teachers had to overcome. Students' safety during physical education, the intellectual property of the material used, and the curriculum quality were among the main concerns of teachers. The need for teachers to be better supported and

	trained was highlighted.
(Kundu & Bej, 2021)	Only a few concerns were expressed regarding the infrastructure and teachers had the required self-efficacy and knowledge to effectively transition to online learning which they viewed positively.
(Ladendorf et al., 2021)	Teachers were competent in integrating technology in their activities which they carried out successfully. Teachers with better understanding of their subject did not feel like their students enjoyed the experience or performed better. More support and training are needed for teachers to teach online more effectively.
(Lee et al., 2021)	Student learning outcomes were correlated with their positive attitudes toward online learning and their self-motivated studying. The need to promote and cultivate student self-motivated learning habits was highlighted.
(Lenka et al., 2021)	Despite teachers' using different teaching methods and forms, physical education was one of the subjects that faced the most difficulties to be taught in online environments. Most schools did not provide physical education classes or replaced them with theoretical lessons. Only some teachers actively promoted and engaged themselves in physical activities during their lessons with the majority simply sending premade videos. The role of parents and physical educators as promoters for students' engagement in physical activities was pointed out.
(Leproni, 2021)	Despite teachers' lacking proper training, they were prepared to transition to distance learning. Teachers had difficulty in monitoring the progress of their students and keep them motivated. Teachers stated that they are ready to integrate the tools and strategies used during online learning in blended teaching.
(Levpušček & Uršič, 2021)	Parents reported increased difficulty in managing their work and supporting their children's remote education as well as motivating them to study. They regarded traditional education as simpler and easier than emergency remote education. Additionally, they highly valued teachers' effort but have noticed children's decreased knowledge acquisition. Finally, they believed that online education will be widely adopted in the future.
(Liao et al., 2021)	Teachers highlighted the need for more engaging, organized, and interactive learning experiences. Additionally, the development of digital competencies and the active involvement of parents were highly valued.
(López-Fernández et al., 2021)	Teachers assessed that online learning led to increased work overload, decreased social interactions, and reduced students' learning motivation in comparison to face-to-face learning. Teachers also deemed the physical activities that took place in online environments of lesser quality than those that occurred in physical environments. Digital inequalities in terms of access to the necessary technological equipment were evident.
(Ma et al., 2021)	K-12 students experienced PTSD and depression symptoms during the COVID-19 pandemic. Although most students were satisfied with their online learning experience some did not feel comfortable with it.
(Ma et al., 2021)	Most students felt that online learning was not as effective as face-to-face leering. The majority of final year students expressed that the COVID-19 pandemic had a negative effect on their college entrance exam preparation. Many students experienced post-traumatic stress disorder symptoms. Students grade, residential background, and living conditions were related to their perceived satisfaction and effectiveness of distance education.
(Mabrur et al., 2021)	Several students were familiar with and accustomed to online learning, were motivated and willing to participate, and had access to the required equipment and tools. To increase the effectiveness of distance education, institutions should address the drawbacks of online learning and reduce

	students' dropout rate. The need for policy-makers to assist in improving students' motivation, digital literacy skills, awareness, and access to equipment was pointed out.
(Manca & Delfino, 2021)	Pre-existing digital competencies and close collaboration and communication within the school community emerged as the main factors that allowed a smooth transition to online learning and a rapid adjustment. The increased difficulties that immigrant students experienced were highlighted.
(Maněnová et al., 2021)	Digital competencies, educational settings organization, and teaching methods and forms were the main factors that affected distance education. Administrators were satisfied with the overall effectiveness of online learning and highly valued teachers' efforts. Sufficient support from management, teachers' pursuit to engage students, and develop stakeholders' digital literacy skills were determining factors for the success of distance education.
(Maras, 2021)	Parents quoted that students mostly used emails and communication applications to interact and communicate with their teachers and peers. Additionally, the increase of digital skills and familiarization with ICT and communication tools emerged as the main benefits. Technical difficulties were the main drawback. The need for teachers to use videoconferencing more frequently and integrate online forums and virtual classrooms as a means to promote educational discussions was highlighted.
(Martins et al., 2021)	Despite the benefits that online learning can yield regarding autonomy and flexibility, it is unfavorable for the development of students' socio-emotional skills. Lack of technical skills, effective time management, and students' monitoring emerged as the main difficulties. The need for appropriate training programs to be developed was highlighted.
(Miguel et al., 2021)	Parents mostly provided material and emotional support and highly valued their communication with schools. Teachers faced several difficulties but managed to address them and resolve problems associated with children's academic issues. Students highly valued the effort of both parents and teachers. Digital literacy, knowledge of online learning, and Internet connectivity were the main aspects that affected distance education.
(Moldavan et al., 2021)	The increase of digital divide which, in turn, led to educational inequalities was evident. The need to provide equity-oriented technology integration was highlighted.
(Moorhouse & Wong, 2021)	Teachers underwent teacher and school-initiated professional training and development. Additionally, they were able to find innovative ways to address the challenges that arose.
(Ozamiz-Etxebarria et al., 2021)	Age, gender, educational level, and job stability affected the degree of anxiety, stress, and depression that many teachers expressed. The need to support the mental health of teachers was highlighted.
(Petek, 2021)	Teachers had a positive attitude toward distance learning and felt comfortable using new tools. Despite this fact, they felt that this method drained them more physically and mentally. The amount of material, the familiarization with ICT, and the opportunity to monitor students emerged as the main benefits. While the lack of participation and non-verbal communication as well as technical difficulties were the main challenges. Teachers believed that students did not gain as much knowledge as they would in traditional learning. Teachers who received proper training to teach online felt more empowered to use ICT in their teaching.
(Polikhun et al., 2021)	Distance learning was assessed as a low efficiency medium to teach primary education students but was greatly valued to teach students of higher grades. Among the participants, parents rated the quality of distance learning the lowest. Differences between the gender of the parents were observed. Teachers rated the usefulness of the educational platforms used and the effectiveness of online learning higher than students did.

(Potyrała et al., 2021)	Most schools did not experience any difficulty in transitioning to online teaching, particularly due to the effective communication between teachers and students and their digital competencies. Several positive and negative effects were identified.
(Prasetyo et al., 2021)	Perceived ease of use, the quality of the system and its user interface, and information quality were the main factors that affected students' acceptance and behavioral intention to use the online platforms.
(Purnomo et al., 2021)	Despite teachers' providing all the necessary digital educational resources and applying different types of assessments, most of them conducted only cognitive assessments and did not evaluate students' practical skills. The need for proper student assessment throughout all development areas was pointed out.
(Ristivojevic, 2021)	Younger teachers were able to overcome the difficulties arisen in distance education more easily. Most challenges were related to technical issues. Teachers believed that traditional face-to-face learning is more effective than online learning, but they will integrate aspects of online learning in their classrooms. The need to provide teachers with appropriate technical support was highlighted.
(Russo et al., 2021)	Teachers appreciated more the effort made by students during face-to-face learning. Difficulties accessing material, lack of collaboration and communication, parents' negative attitudes, and a lack of a classroom atmosphere arose as the main reasons why teachers considered productive struggle in distance education as problematic.
(Samawi, 2021)	Teachers assessed their online teaching experience as moderate. Planning, leadership skills, information and communication domains, and teamwork were the main requirements that affected the management of distance education.
(Sánchez et al., 2021)	Organizational problems and the lack of resources and knowledge led to many families experiencing difficulties during remote teaching. These difficulties were even more apparent in households with unemployed parents. The need to promote communication between families and schools while simultaneously reducing the digital divide caused by social and family conditions was pointed out.
(Santos et al., 2021)	Lack of appropriate teacher training, feedback, technological means, and collaboration with some families emerged as the main constraints of distance education. Students' increased autonomy, family involvement, peer collaboration, and the creation of new teaching and learning methods and approaches were the benefits of online learning.
(Scarpellini et al., 2021)	In comparison to secondary education, primary education lessons had less stable and organized routines, required multiple breaks, and the learning quality was lower. Additionally, increased aggressiveness and restlessness were observed. The majority did not view distance learning positively as it required a lot of effort and commitment and they themselves had to play the role of teachers. The increase in social inequality and educational deprivation along with the ineffectiveness of distance education for6 students of young age were highlighted.
(Schuck et al., 2021)	Teachers' practices and parents' involvement varied greatly. The main themes emerged were the prioritization of non-academic socio-emotional support, the importance of feedback, and the need for mutual understanding and cooperation.
(Seabra, Abelha, et al., 2021)	Although parents' workload increased, they were moderately satisfied with emergency remote teaching and learning. Teaching activities varied between educational levels. The importance to cultivate parents' digital competencies was highlighted.
(Seabra, Teixeira, et al., 2021)	Despite teachers' expressing concerns regarding the transition to emergency remote teaching and learning, the majority of them considered it as an opportunity and viewed the whole experience positively. Working conditions, time management, and increased workload emerged as the main

difficulties that teachers faced. Involvement, autonomy, parents' role, and lack of communication were students' main constraints. Teachers' lack of support and guidance from government and schools was highlighted.

(Shamir-Inbal & Blau, 2021)	Despite overcoming the challenges associated with emergency remote teaching, the need to cultivate students' and teachers' digital competencies to be better prepared for future emergency events was highlighted. After having experienced both synchronous and asynchronous learning, the benefits of incorporating blended learning approaches to increase learning outcomes and enhance the quality of education were pointed out.
(Silva & da Silva, 2021)	The participants indicated that although emergency remote teaching was not ideal, it was what they had at that moment. This kind of teaching was characterized as "teaching for the few" due to the amplification of social inequality. The effort that teachers put to provide high quality education during such demanding times was highlighted.
(Šimková, 2021)	Five different types of approaches to education at home regarding the involvement and help of parents were identified.
(Simonova et al., 2021)	Lack of technical support, difficulty in time management, limited digital literacy were the main issues that emerged. The need for appropriate training programs was highlighted.
(Singh et al., 2021)	Physical environment constraints, socioenvironmental limitations, well-being hazards, parental support, and ineffective learning emerges as the main challenges teachers faced. They experienced additional issues which were related to technical difficulties, poor Internet connection, difficulty in using digital platforms, and inadequate support.
(Smetackova & Stech, 2021)	Most parents were satisfied with home education. Despite this fact, their socio-economic and cultural status affected their viewpoints with parents of lower socio-economic status reporting more concerns. Communication, curriculum effectiveness, children motivation and support, and parent educational aspirations for their children were linked with the parents' socio-economic status
(Sofianidis et al., 2021)	The need for educators and educational policymakers to give voice to students and take their viewpoints into consideration was highlighted. Lack of equipment, inadequate applications, and poor Internet connection were the main challenges. Students' home conditions and teachers' familiarity with ICT and online pedagogy significantly affected student performance. Finally, students were concerned regarding the effectiveness of online learning in comparison to traditional face-to-face education.
(Stajic & Ivanovic, 2021)	The majority of students stated that they preferred traditional learning and only a few of them quoted that they would recommend using online distance learning in the future. Flexibility emerged as the main benefit of online learning while lack of motivation as its main disadvantage. Teachers' role in actively supporting and communicating with students was highly valued.
(Štibi et al., 2021)	Despite the lack of digital competencies and increased workload and time spent preparing classes, teachers adhered to the set schedule and activity assessed students' activities while being more lenient and flexible in terms of attendance. There was a clear lack of hands-on activities which got replaced by videos and simulations. The increased workload, lack of experimental activities, technical knowledge, resources, and equipment emerged as the main challenges. Teachers were open and adaptive to familiarize themselves with new forms of teaching and stated that they will incorporate elements of online learning into their traditional classrooms.
(Stojkovic & Jelic, 2021)	Students negatively assessed distance education and regarded the lack of interaction as the main drawback. The use of ICT to enrich educational activities and to provide new means of communication were the positive aspects while lack of intrinsic learning motivation and deficiencies

	in self-regulated learning were the negative ones.
(Sumarsono et al., 2021)	Parent involvement influenced the overall online learning experience positively. Secondary graduate students' competence and performance should be used as a reference to develop appropriate approaches, processes, and evaluation methods. Student achievement of graduate competency standards and principal supervision were negatively correlated to the effectiveness of distance education.
(Surianshah, 2021)	Educational inequalities were observed particularly for students living in rural areas. Some students took on part-time jobs to purchase the necessary digital equipment to effectively participate in online learning. Students' inability to attend online classes affected their viewpoints regarding the effectiveness of distance education. The need for policymakers and governments to find effective strategic interventions to address the digital divide and provide equal opportunities to education was highlighted.
(Svobodova et al., 2021)	Teachers regarded that face-to-face learning cannot be replaced particularly in primary education and for students with special educational needs. Technical problems, lack of socialization, and digital divide were teachers' main concerns. Additionally, they quoted that the technical problems experienced were not only related to a lack of equipment but also to students' age, maturity, family situation, willingness, and personal factors. and practices should be developed, focus should be given on reforming the curriculum, and communication and collaboration among all educational stakeholders should be promoted.
(Szpunar et al., 2021)	The effective learning time got reduced in distance education as student focus decreased after a certain time period. Teacher lack of adequate training was apparent. Students' exposure to poverty of education and the deprivation of social relationships were highlighted.
(Tay et al., 2021)	Teacher highlighted the importance of engaging students during online learning. The need for teachers to develop their skills and for student to cultivate their self-directed skills was evident. Social media emerged as a useful tool to facilitate learning activities and communication. Additionally, the need to apply the most effective educational platform or application for each case was highlighted.
(Timmons et al., 2021)	Five themes emerged that of academic impact, effect on parents and families, online versus traditional teaching and learning, equity considerations, and social and emotional effects on students.
(Unger et al., 2021)	All participants agreed that testing for COVID-19 more often would increase their perceived safety. Despite this fact, administrators and teachers had concerns regarding the financial cost and logistics while parents were worried about physical discomfort and the stigma for students who tested positive. Students were favorable toward more frequent tests as it would allow them to return to face-to-face learning sooner.
(Usca et al., 2021)	Teachers agreed that their digital skills were improved during emergency remote teaching which revealed weaknesses and strengths of the existing education system. Although statistically significant differences were observed based on teachers' age, they were anxious, stressed, and dissatisfied with the educational process quality and their digital skills level. Teachers expressed the need for more support and changes at institutional, municipal, and national level.
(Velasco et al., 2021)	Teachers related negative aspects of online learning to interpersonal viewpoints, student involvement as well as the curriculum organization and approaches used. Despite the benefits in health and learning outcomes being reported, teachers were skeptical about the viability and feasibility of the online program.

(Volodymyrovych et al., 2021)	No significant statistic differences were observed regarding the learning efficiency in online learning in comparison to face-to-face learning. Despite online learning being assessed as more flexible and convenient, it was less effective in improving students' social competencies and practical skills and led to a reduction of students' self-activity.
(Watermeyer et al., 2021)	Teachers perceived the transition to online learning positively. Many choices were made based on economic ambitions and a utilitarian logic instead of pedagogical concerns. The opportunity to provide a paradigm change and education without any limits under specific circumstances was highlighted.
(Wong et al., 2021)	Teachers experienced a moderate level of anxiety, depression, and stress during distance education. Their digital competence and working motivation were also at a moderate level. Despite this fact and the challenges that teachers faced, they were motivated to provide high quality teaching. Finally, teachers' psychological status was negatively related with their e-teaching competences.
(Xu, 2021)	Despite students' ability to effectively and rapidly adapt to new learning environments and styles, there still remain notable limitations, such as lack of communication, interactions, and supervision as well as the study atmosphere and learning motivations.
(Yan et al., 2021)	Students' learning conditions were affected by the learning media and approaches used as well as their family and home environment. Students' age differences resulted in diverse expectations of online learning and need for social interactions and learning regulation support. Primary education students felt the need for more support and interaction with their teachers. The flexibility that online learning provides emerged as its main benefit while poor Internet connection and confusion in setting up and using online learning platforms as its main issues.
(Yüksel et al., 2021)	The main challenges that students faced were related to academic performance, socio-emotional states, and language development while instructional problems were related to students' engagement and participation. Students with special educational needs had more difficulties in adapting to online learning and maintaining their focus during lessons.
(Zekaite et al., 2021)	Distance learning further increased the inequalities in the educational community. Difficulties were divided into three levels. The first level (equipment) was more easily dealt with due to the immense contribution of both parents and school communities. While second (digital literacy) and third (sociodemographic and socio-economic differences) level difficulties were more difficult to overcome. The crucial role of the school community to act as a whole to overcome these challenges was highlighted. Finally, the need for properly trained to teach online special needs professional was evident.
(Zhao et al., 2021)	The use of multimedia greatly helped students who also received increased help from their parents. Learning from distance was assessed as less effective and led to decreased cognitive learning in comparison to traditional learning. Lack of social interactions and communication, decreased teachers' supervision, reduced and delayed feedback, and shorter lessons emerged as the main issues. The need for innovative pedagogies was highlighted.
(Züchner & Jäkel, 2021)	Student digital competencies, feedback received, and home digital infrastructure were the factors that led to the successful task completion. Students learning motivation and self-regulated learning affected their distance learning experience. The importance of social interaction and communication with teachers and the provision of individual feedback during distance learning was pointed out.
(Albó et al., 2020)	During the pandemic, teachers had more opportunities to be trained to develop their skills and gained self-confidence in using ICT for both teaching and communicating. Despite this fact, teachers regarded that students' lack of technical equipment and resources as well as the digital

	divide that was created among them affected their ability to teach effectively in online learning.
(Alfaro et al., 2020)	Teachers' lack of training and limited ability to use digital technologies were the main challenges faced during the emergency remote teaching and learning.
(Alper, 2020)	Teachers were able to adapt their practices and adopt ICT in their teaching activities successfully. The lack of face-to-face interactions and the long time spent on digital screens emerged as the main drawbacks. The ability of teachers to teach at a faster pace and of students to be more attentive were the main benefits.
(Anderson & Hira, 2020)	Teachers used multiple platforms to communicate with parents and students. At the cost of their own work-life balance, teachers learned to better use and integrate ICT in their teaching to improve the education quality.
(Ayda et al., 2020)	Mixed opinions regarding distance education were expressed by special education teachers who stated that there are neither adequate programs nor strategies for students with special needs to experience effective distance learning. The need to create new approaches and take student developmental characteristics into account was highlighted.
(Babic et al., 2020)	Teacher intention to integrate and use ICT in their teaching was influenced by their educational values, digital literacy, self-efficacy, course structure, and ability to use ICT for pedagogical purposes.
(Babinčáková & Bernard, 2020)	Teachers were well-equipped, accustomed to using ICT, and familiar with online learning. They used digital media and approaches during their teaching and were able to conduct measurements more quickly. Many students had difficulty in understanding the subject taught due to the pace of teaching, as they did not have sufficient time to discuss, take notes, and ask questions. Poor Internet connection and lack of social interactions and communication were the main challenges that students faced. The need to include experimental activities, to better organize and pace teaching activities, and to share the educational material with students after the lesson was highlighted.
(Brom et al., 2020)	Parents were able to overcome the difficulties associated with the transition to home education and assessed the overall experience as useful. Parents played an active role in their children's learning and got engaged in several activities with them. Lack of time, technical difficulties, inadequate teaching skills, and insufficient educational material emerged as the main issues. Instead of providing students with more feedback, teachers assigned them more tasks.
(Çelík & Íşler, 2020)	The themes related to students experience of online involved them being away from school, undertaking the activities and tasks at home, facing difficulties concerning course material, and analyzing the characteristics of their most favorable practices. Although refugee students experienced more difficulties, they had a mixed learning experience with some reporting positive viewpoints.
(Code et al., 2020)	The transition to emergency remote teaching affected teachers' ability to provide hands-on learning activities which, in turn, affected students' engagement and motivation. Students inequitable access to tools and lack of material and resources emerged as the main challenges. Teachers questioned the viability, sustainability, and effectiveness of a completely online learning system.
(Demir & Özdaş, 2020)	Besides carrying out online lessons, teachers also prepared and shared appropriate material, communicated with parents and students, and monitored students. Training activities were assessed as satisfactory, limited at cases, and inconvenient. The problems emerged were related to insufficient communication, infrastructure, planning, and participation.
(Dias-Trindade et al., 2020)	The transition to online learning was facilitated by the support and guidance of schools and administrators. Teachers' training was also determining. The same technologies and platforms were

used in all the schools examined. The significance of pedagogical relationships and the fact that schools should pursue and support inclusion and equity was highlighted. No significant differences between the two countries emerged. Finally, the role of technology in establishing social and educational equality through well organized and strategically planned access schemes was pointed out.

(Erümit, 2020)	The tools used were deficient in preparing students for their final examinations, but they were able to support their learning and psychological state. Synchronous lessons were assessed as more preferable and effective.
(Ferraro et al., 2020)	The importance of social interactions, student active involvement, and communication with peers and teachers was evident. Despite the lack of face-to-face interactions, the relationship with peers and teachers did not change for the vast majority of students as they were able to communicate and interact via social media platforms. Additionally, there were no significant differences regarding gender in the way students perceived distance learning. Students' anxiety in relation to homework decreased during asynchronous learning.
(Gokuladas & Baby Sam, 2020)	Teachers' perceptions of ease of use and usefulness of online learning were correlated with their attitudes toward online learning and their extrinsic and intrinsic demotivators which, in turn, affected the effectiveness of online learning.
(Gören et al., 2020)	Administrators provided sufficient feedback to teachers and were actively involved in the educational process. Teachers followed their schedule without problems and most students had the required resources to participate in distance education. Despite this fact, the participants assessed distance education as less effective in comparison to face-to-face education. Secondary school participants had more positive view regarding online distance education and its future potentials. Participants from distant areas were more favorable toward continuing learning online.
(Ionescu et al., 2020)	Online learning was assessed as an effective and sustainable learning approach during emergency situations. The need for collaboration among education stakeholders and constant student behavior and performance monitoring was highlighted.
(Lau & Lee, 2020)	Due to home conditions and lack of motivation, students faced difficulties in completing their assignments. Parents had mixed feelings about online learning and expressed their need for more support from schools. There was a lack of parental mediation on student digital devices use. The need for mixed learning environments was highlighted.
(Lie et al., 2020)	Teachers in remote regions required more support. Despite this fact, they tried to improve their practices and increase their teaching quality. Teachers' digital literacy, technological and pedagogical knowledge, and prior online learning experience, school support, and students themselves affected the effectiveness of distance education. Digital divide within the educational community got amplified.
(Lyu et al., 2020)	The learning perspectives of the older generation changed while the younger generation understood and highly valued lifelong learning. The relationship between both generations grew tighter and both gain new knowledge, values, and skills.
(Mailizar et al., 2020)	The challenges faced by students influenced on online learning the most and they were strongly correlated with the challenges and issues of the school and curriculum. Teachers' background did not affect the challenges faced.
(Mikušková & Verešová, 2020)	Teachers were willing to adapt their practices. Their negative emotions increased during the pandemic while their positive ones decreased. Teachers' personality and emotions affected the quality of their teaching. The need to improve teachers' self-confidence, self-exploration, meta-

	cognition, communication styles, work engagement, and coping strategies was pointed out.
(Nemec et al., 2020)	Students were assigned more homework and spent more time learning during online learning than when learning in traditional classrooms. Students' physical and mental conditions were above average. They highly valued the possibility to create their own schedule.
(Peñuelas et al., 2020)	Both teachers and students reported difficulties to carry out school activities. Laptops and smartphones were the devices mostly used. Institutions facilitated the educational process by providing support regarding courses and online platforms used. The revaluation of existing educational practices was highlighted as one of the benefits of the transition to online learning.
(Pocinho et al., 2020)	All teachers had the required equipment but most of them had not received specific training. Teachers used all kinds of digital resources which enhanced students' attention and learning motivation, reduced deviant behaviors, and improved student-teacher relationship and overall performance. The need for good planning, strategies, and execution was pointed out.
(Simpson, 2020)	To provide more effective learning, teachers adopted different strategies that some were successful and others were not.
(Wang et al., 2020)	Teachers positively viewed the online learning platforms used. Accessibility, ease of use, facilitation of resource delivery and management as well as assignment collection and grading tools were the platform functions more valued. Teachers could effectively carry out large-scale online learning and organize their classroom and resources.