Challenges and Concerns in 21st Century Education
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The Department of Primary Education at the University of Ioannina (Greece), since its founding in 1982, has a long-standing tradition in offering high-quality education and training to its undergraduate, postgraduate and doctoral students. The Department organized an International Conference, entitled “Education in the 21st Century: Contemporary Challenges and Concerns” (13–15 May 2022), in which 400 peer-reviewed papers were presented. This book is a collection of selected papers on a range of topics and fields (re)presented at the conference. We are grateful to the authors who submitted their work to the volume and Cambridge Scholars for their valuable help.

Editors
INTRODUCTION

SPYRIDON-GEORGIOS SOULIS
MARIA LIAKOPOULOU
ALEXANDRA GALANI

Central Themes of the Volume

The book aims to capture the educational reality in the twenty-first century, a turning-point period for education due to the latest social, political, economic, cultural and health conditions. Education is an open loop in society; it is influenced by the existing conditions and it affects them. This is a sine qua non for the re-examination of fundamental pedagogical issues. The ultimate goal is not only limited to a description of the current situation. It most notably reflects on how schools will not lag behind developments and how they will serve as the main means to co-shape these developments.

The book contains a selection of thirty-nine papers by specialized researchers on topics related to the modern educational reality and is organized as follows:

Part I. Education and the pandemic: The global character and long duration of the COVID-19 pandemic changed the social, political and economic reality. Education and schools could not have been left unaffected. On the one hand, schools had to continue functioning in a new reality. On the other hand, they had to equip the new members of society with skills so that they could live in this new reality. The papers that have been selected for this part record the educational reality during the pandemic at all levels of education. They also examine research data on the impact of the pandemic, in terms of the learning outcomes and at a psychological, emotional and social level. Finally, they mainly provide the tools to allow Education to respond to health crises in the future.

Part II. School in the 21st century: This part focuses on primary and secondary education and, more specifically, on issues related to teaching methodology. It puts the emphasis on the individualization and differentiation of the teaching process, and the content of education (i.e.,
natural sciences, philosophy), as well as the contribution of educational leadership and school-unit self-evaluation to school improvement.

Part III. Inclusive education: The demand for quality education for all is the current challenge that modern education systems need to address. The present volume examines students’ academic skills in non-formal development education and proposes inclusive education models and practices.

Part IV. Intercultural education: Immigrants and refugee students are two vulnerable student groups. Firstly, this part discusses how the unclear context of refugee student repositioning can affect their educational progress. It also highlights the need for à la carte education that takes into account children’s needs in cooperation with their families. Research data are also presented regarding the ways in which teachers deal with and interpret the difficulties and obstacles they encounter in the education and integration of students with a refugee background. Additionally, literacy practices for Roma students are presented alongside issues related to intercultural readiness and teacher adequacy.

Part V. New technologies in education: The papers in this part first discuss useful strategies as well as the establishment of a proposed educational model of critical digital literacy, which aims to empower students against misinformation. They further examine issues related to the didactic utilization of new technologies and to the development of digital literacy skills.

Part VI. Environmental and sustainability education: School collaboration with the wider community is a key pillar in environmental education. An ecology on the move is proposed, seeking to intertwine philosophical, ontological and empirical realities with the moral, political, social and cultural dimensions of the self and of the engagement with nature, in the context of authentic pedagogical encounters between children and their place.

Part VII. Language and literature: A modern approach is taken as far as language and literature issues are concerned. The impact of morphological awareness on the reading comprehension of children who had Greek as a first and second language, as well as graphic organizers as an educational tool for the visual-spatial representation and articulation and the constructed rendering of the structure and narrative elements of a literary text, are discussed.

Part VIII. Arts and education: Examples of how various art forms are used in education are presented in this part.

Part IX. Teacher training and professional development: A fundamental condition for teacher effectiveness is a teacher’s self-
reflection before, after and during their teaching. Research data on the effect of self-reflection, based on prospective teachers’ personal theories, are presented. The following key issues are also analyzed and highlighted in the last part of the book: prospective and incumbent teachers’ self-reflection, prospective teachers’ internship, distance education and training, and the creation and impact of learning communities.

The book contributes to a) the enrichment of relevant research, b) the update and reformulation of theories based on modern needs, c) the documentation of educational policies for a school that will ensure a high level of education for all students, and d) the enrichment and formulation of didactic and pedagogical practices adapted to the requirements of the modern reality.
PART I

EDUCATION AND THE PANDEMIC
DISTANCE EDUCATION IN THE SHADOW OF THE COVID-19 PANDEMIC:
SECONDARY EDUCATION TEACHERS’ EXPERIENCES—A CASE STUDY

SOUSANNA MARIA NIKOLAOU
CHARALAMPOS BARMPAROUSIS

Introduction

In many countries, it was decided that the regular operation of educational institutions of all levels would be suspended to deal with the COVID-19 pandemic (Sahu 2020; UNESCO 2020). The new situation has caused global research interest regarding the way schools and teachers deal with the demands of the urgent distance synchronous and asynchronous teaching (Hodges et al. 2020). Al-Sharah et al. (2021) studied the factors that determined the impact of the COVID-19 pandemic, according to Jordanian teachers’ perceptions of different aspects of the English language teaching effectiveness during compulsory distance education, and stressed the importance of “thematic content knowledge,” as well as the importance of “social-emotional skills” in comparison to “pedagogical skills.” However, teachers had difficulty in supporting their students’ mental health during this difficult time.

Another study (Mohd and Shahbodin 2021) assessed thirty-one secondary school teachers’ perceptions of online teaching and learning engagement in Malaysia during the COVID-19 pandemic. The main findings of the research concern the challenges of designing learning activities that would activate and stimulate student participation in the online classroom, adopting appropriate teaching styles that correspond to the students’ maturity level, and the lack of teaching skills for the demands of distance education and time management. Also, the emotional dimension of social interaction between teachers and students played a decisive role in
enhancing cognitive processing and student participation in the learning procedure.

In another study (Saputra, Ayudhia and Muswari 2022) aiming to investigate the challenges faced by seventy-three secondary-school English teachers in Indonesia during the compulsory distance education, the following emerging issues were emphasized: a) the use of objective questions; b) the students’ actual academic performance and the difficulties in monitoring their progress; c) the students’ strong sense of isolation and the consequent decrease in their enthusiasm for learning; d) the increase in the students’ stress levels; e) the students’ lesser involvement in the learning process, which significantly reduces the possibility of cooperation; f) the teaching difficulties in the context of online learning; and, finally, g) the teachers’ concern regarding the time required for designing the learning activities using technological means.

In their study, Cadamuro et al. (2021), investigating the experience of eighty-three teachers at a high school in Northern Italy, regarding distance education, concluded that the knowledge transfer model is doomed to fail. And this is because it leads to a lack of motivation and low participation of students in the learning process while, at the same time, it increases the levels of teacher frustration. In addition, they consider it important that teachers are equipped with technical and pedagogical knowledge that will allow them to use new technologies in such a way as to promote the active role of the student, and to encourage participation and cooperation among peers.

In their research, Nilsberth et al. (2021), applying the method of thematic content analysis to the narratives of fifteen Swedish secondary school teachers, revealed three thematic categories regarding their experiences in teaching practices during the emergency distance teaching: a) concerns regarding the teaching content with an emphasis on assessment-grading, b) teachers’ assessments of classroom interaction, and c) focus on their active effort to find new ways to support all students in the learning process.

Even in Greece, another small-scale study (Samioti 2021) explored the challenges faced by secondary school teachers during the first wave of the COVID-19 pandemic. The thematic categories that emerged after the qualitative analysis concerned the central issues that preoccupied teachers and related to their sense of inability to manage their students’ learning (e.g., students were engaged in other activities during the lesson), the reduced social interaction, the low student participation per lesson, the lack of students’ skills and the lack of teacher training and support on distance education, the teachers’ workload, the technological infrastructure and the lack of technical support, the unclear government directives, etc.
Purpose and Methodology of the Research

This small-scale case study (Creswell 2007, Savin-Baden and Major 2012) attempts to highlight the way in which teachers of a small secondary school (co-located junior and senior high schools)—in Karditsa, Greece—lived the experience of distance learning during the period of the forced suspension of the regular school operation. The specific study was an endeavor to strengthen the teachers’ reflection when the schools returned to their regular operation, regarding the way they experienced and, eventually, valued distance education. Teachers recorded their experience in a free-form text using open-ended questions (Züll 2016). The data were collected in April 2021 and processed with the application of the thematic content analysis method (Bonidis 2004; Braun and Clarke 2006; Elo and Kyngäs 2008; Tsiolis 2017). The responses were coded and the texts were thematically analyzed in categories that were not predetermined but emerged from the data (Miles and Huberman 1994). The trustworthiness of the content analysis was ensured after following the steps suggested in the checklist of Elo et al. (2014). The sample of the research consisted of eight teachers (four men and four women), who agreed to participate in the research. The demographic characteristics of the sample are summarized in Table 1.

Table 1. Demographic Characteristics of the Sample

<table>
<thead>
<tr>
<th>S/N</th>
<th>Sex</th>
<th>Teachers’ Specialty</th>
<th>Age</th>
<th>Years of Teaching Experience</th>
<th>Master’s Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Female</td>
<td>English Language</td>
<td>45</td>
<td>17</td>
<td>Yes</td>
</tr>
<tr>
<td>T2</td>
<td>Female</td>
<td>Theologist</td>
<td>52</td>
<td>22</td>
<td>Yes</td>
</tr>
<tr>
<td>T3</td>
<td>Male</td>
<td>Mathematician</td>
<td>58</td>
<td>25</td>
<td>No</td>
</tr>
<tr>
<td>T4</td>
<td>Female</td>
<td>Philologist</td>
<td>45</td>
<td>12</td>
<td>Yes</td>
</tr>
<tr>
<td>T5</td>
<td>Male</td>
<td>ICT</td>
<td>45</td>
<td>16</td>
<td>Yes</td>
</tr>
<tr>
<td>T6</td>
<td>Male</td>
<td>Sociologist</td>
<td>48</td>
<td>12</td>
<td>Yes</td>
</tr>
<tr>
<td>T7</td>
<td>Male</td>
<td>Physics</td>
<td>54</td>
<td>20</td>
<td>No</td>
</tr>
<tr>
<td>T8</td>
<td>Female</td>
<td>Philologist</td>
<td>49</td>
<td>16</td>
<td>No</td>
</tr>
</tbody>
</table>
Presentation of the Results

Following the data analysis, the teachers’ experiences in the specific school were classified in six main thematic categories that emerged in relation to distance education practices: a) impact on the learning process, b) teaching approaches, c) emotional imprint, d) social impact, e) socialization, interaction and communication, and f) logistics infrastructure problems. Furthermore, sub-categories were formed within each thematic category (see Table 2).

Table 2. Thematic Categories and Sub-categories

<table>
<thead>
<tr>
<th>Thematic Categories</th>
<th>Thematic Sub-Categories</th>
<th>Teachers</th>
<th>( f )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact on the learning process</td>
<td>Problematic about the consolidation of the material</td>
<td>T1, T2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Suitable learning Environment</td>
<td>T4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Participation in the teaching/learning process</td>
<td>T2, T4, T5, T6, T8</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Perpetuating inequalities in learning performance and engagement</td>
<td>T1, T2, T3, T4, T6, T7</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Unsuitable conditions for the accomplishment of the learning objectives</td>
<td>T2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Assessment/supervision/control</td>
<td>T2, T3, T7, T8</td>
<td>4</td>
</tr>
<tr>
<td>Teaching approaches</td>
<td>Efforts to implement new teaching methods, teaching approaches and the use of synchronous and asynchronous distance teaching tools</td>
<td>T1, T4, T6, T7</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Prevalence of traditional teaching methods</td>
<td>T5</td>
<td>1</td>
</tr>
<tr>
<td>Psycho-emotional imprint</td>
<td>Students’ fatigue and negative emotions</td>
<td>T1, T2, T3, T5, T6</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Teacher fatigue</td>
<td>T1, T5, T8</td>
<td>3</td>
</tr>
<tr>
<td>Social impact</td>
<td>Stress/feeling of helplessness and abandonment by the State</td>
<td>T2, T3, T6</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Public exposure of the educational work</td>
<td>T1</td>
<td>1</td>
</tr>
</tbody>
</table>
Familiarity with new technologies | T1, T7 | 2
Socialization, interaction and communication | Isolation | T2 | 1
Student interaction and communication via informal means of communication | T6 | 1
Concerns and reflections | T2, T5 | 2
Teachers’ cooperation | T3 | 1
Teacher-student Interaction | T4, T5, T6 | 3
Socialization in a “sterilized” environment | T6 | 1
Logistics infrastructure problems | T2, T3, T4, T5, T6, T7, T8 | 7

Impact on the Learning Process

a) Two teachers were concerned (T1, T2) about the assimilation and understanding of the teaching material. Actually, it was supported:

In learning terms, I estimate that children assimilated 30% compared to regular teaching. It is difficult to check how much they understood the material and it was equally difficult for most students to express questions. (T2)

b) It was considered that, in the context of distance education, the course of the educational process would be determined by the mediating role of technology. Therefore, the creation of an emotionally supportive and social-skills-promoting learning environment for the students would be impossible (T4).

c) The recorded decrease in the student involvement in the learning process was attributed to several factors. Firstly, not all students showed the high degree of maturity and commitment required for distant learning. The prolonged duration of distance education created high levels of fatigue. Finally, students occasionally disengaged from the lesson, chatting in private with their classmates on other platforms, such as messenger, discord, etc., or being busy with applications, such as Facebook or Instagram (T2, T4, T5, T6, T8).
d) It was found that the pre-existing inequalities in students’ learning performance and involvement during the regular school operation were maintained and perhaps widened in distance education practices. Low-achievers and students with learning disabilities seem unable to meet the demands of distance learning compared to traditionally high-achievers. This was interpreted as a result of the socioeconomic characteristics of the families that offer unequal access opportunities to logistics equipment and the different expectations in different families about student performance and progress; factors that play an important role in active student participation in the distance learning process (T1, T2, T3, T4, T6, T7).

There were learning opportunities, which many children took advantage of, but I think they are the same children, the excellent students who would attend the lesson with zeal in the school classroom if the lesson was held there. (T3)

e) It was highlighted that difficult family conditions impeded the learning process (T2).

f) It was considered that student performance assessment in an objective way, supervision, and attendance control were not easy in distance education classes (T2, T3, T7, T8).

Teaching Approaches

a) Despite the technical and technological difficulties that prevented group work, the implementation of new teaching methods/practices and the utilization of synchronous and asynchronous distance teaching tools were attempted (e.g., the flipped-classroom method, differentiated instruction in the e-class asynchronous education platform, virtual tours, interactive assessment tools, e-class assignment tools and learning lines, collaborative presentations, interactive simulation applications, interactive maps, exercise simulations [Phet Colorado], video, etc.) In fact, the utilization of new technological applications was believed not only to facilitate the teaching process, but it also added to the pedagogical value and contributed to the limitation of the traditional teacher-centered teaching model in which lectures can become monotonous. In addition, new technological applications were considered to promote the development of analytical thinking, provide the possibility of applying theory to authentic teaching scenarios, strengthen positive
attitudes towards ICT as teachers and students become familiar with modern ICT tools, media and applications, make the lesson more interesting and attractive and, thus, strengthen citizenship skills (T1, T4, T6, T7).

b) However, the effectiveness of teaching approaches during synchronous distance education through the Webex conferencing platform was a great concern (T5), due to the lack of timely and visual contact since students and teachers were often forced to deactivate visual contact aids for technical reasons (e.g., unstable or weak Wi-Fi, insufficient technological equipment, etc.).

**Emotional Imprint**

a) Students showed signs of fatigue (e.g., tiredness, lack of vitality and joy) and expressed strong emotions (e.g., irritability, moodiness, lack of humor, sadness and boredom, embarrassment, impulsive reactions, etc.) (T1, T2, T3, T5, T6). Indicatively, it was stated:

>The compulsory attendance of the full-time schedule, even reduced by 10 minutes per lesson, was particularly tiring for students [...] This was more intense considering that this long-lasting watching was mainly via mobile phone screens. (T6)

b) Teachers’ fatigue was recorded when trying to apply high energy levels to maintain the active interest of a few participants (T1, T5, T8).

c) Several teachers were stressed when using new digital tools as they felt that they were not capable enough to solve the multifarious problems. Though, they were forced to exceed their limits, receiving the students’ dissatisfaction about the unresolved problems (T2, T3, T6).

**Social Impact**

a) Concerns about the possible future parents/guardians’ intervention in the school’s affairs were raised due to the teachers’ public exposure as many parents and guardians attended their children’s lessons (T1).

b) The familiarization of all stakeholders of the learning process (students, teachers, parents) with the possibilities offered by new technologies was recognized as a positive social development (T1, T7).
Socialization, Interaction and Communication

a) It was stated that distance education created conditions of reduced social interaction, especially for children who were seen as “isolated” in the previous regular school environment (few or no friends, minimal or no social participation, etc.) (T2).

b) It was found that the students’ interaction via informal means of communication contributed to the socialization of the children in an alternative way. The students’ constant need for contact was established and the attention distraction, even in parallel with the ongoing lesson, could have positive learning effects. Reportedly, students revealed that they exchanged opinions and ideas, confirmed exercise results before final submissions, and coordinated questions, queries and clarifications (T6).

c) The virtual class was a place for opinion exchange regarding fears, concerns and, mainly, the effects of the virus on people's lives. Various complaints were often communicated and the students' anticipation for the restart of the regular teaching was recorded. In this way, communication was developed among students and between students and teachers on broader issues, rather than the lesson itself, relating to the current situation and the different everyday life via the educational platform (T2, T5).

d) One teacher referred to the type of communication and collaboration that teachers developed among themselves, especially during the second phase of the pandemic, which related to the exchange of views and experiences on distance teaching and learning issues (T3).

e) It was observed that, teachers and students had lost their spontaneity concerning communication outside the class frame. More specifically, the teachers seemed unable to understand the students’ special features and needs or build mutual trust. There were, though, some positive attitudes in communication through the e-class platform. Namely, introverted students felt more comfortable and communicated with the teacher either to ask questions or request clarifications in the asynchronous environment platform (T6). On the other hand, communication between teachers and students, admittedly, was not always successful (e.g., e-class forum for questions, conversation, etc.) (T4, T5).

f) Synchronous distance learning sessions allow the teacher to define the rules of interaction. The teacher can prohibit the use of chat among students to ensure that their attention is not distracted. They can also control microphones and mute them all at any time. In this sense, the interaction via the Webex distance learning platform
seems sterile, facilitating an uninterrupted presentation of knowledge rather than the students’ socialization. This environment, though, matches more closely to the character of teaching a nationally examined course (T6).

**Problems of Logistics Infrastructure**

Inadequate logistics infrastructure and technological limitations (e.g., the total absence of digital equipment, connectivity and sound problems, students’ exclusive use of mobile phones instead of PCs, etc.) caused problems in the learning process making it difficult if not impossible at times and, thus, often led to a negative learning experience (T2, T3, T4, T5, T6, T7, T8). However, this condition stresses the unequal access opportunities to the digital environment and implies the pre-existing social inequalities related to the lower socioeconomic profile of the students’ families (T4, T5, T7).

**Conclusions**

The challenges experienced by the teachers participating in this research have already been reflected in other studies. For example, in their research, Alea et al. (2020), assessing the perceived teacher challenges during the enhanced community quarantine in the Philippines, illustrated challenges regarding the knowledge and skills required to perform distance education. Their study included issues surrounding communication with students, internet access, the use of equipment, online Learning Management Systems, and social media and various other educational platforms. They also highlighted challenges in student assessment, encouraging participation and leveraging features and opportunities in online courses, issues on time and stress management caused by the quarantine, meeting the demands of online courses, as well as building a positive online environment that could support students emotionally.

Other studies, investigating the views of secondary school teachers regarding online activities during the pandemic, document significant problems in the development of online learning due to the lack of technological services and infrastructure, and the reduction of interaction among the students themselves and between students and teachers. The difficulty of teaching effectively faced by teachers who are not familiar with ICT is also stressed. On a different note, there were positive beliefs of secondary school teachers recorded: regarding their teaching presence in the online environment or positive attitudes towards e-learning and their
willingness to integrate online tools in various teaching practices during the pandemic (Nursalina and Fitrawati 2021; Şevik and Yucedag 2021; Jimoyiannis, Koukis and Tsiotakis 2021; Nikolopoulou and Kousloglou 2022).

Taking into consideration the main findings of the present study, an emphasis should be placed on (El Rizaq and Sarmini 2001; Nilsberth et al. 2021):

a) the educational values that should be satisfied by e-learning (e.g., equity and inclusion of vulnerable students in distance learning practices) (Darmody, Smyth and Russell 2021),
b) the relational/collaborative and interactive dimensions of digitalized teaching,
c) the restoration of the direct interaction among students and between students and teachers both in the development of social skills and in emotional empowerment,
d) the fact that the sustainability of e-learning depends on the readiness of resources and infrastructure,
e) the need to improve teachers' skills regarding the use of e-learning,
f) developing an effective model (e.g., blended learning) for the sustainability of future education,
g) the new landscape developed by online teaching regarding the definition of boundaries between private and public space,
h) highlighting the need for flexibility and adaptability of teaching and educational practices in relation to contemporary developments in society.

References


Introduction

The COVID-19 pandemic led to the suspension of schools’ operation and the transition to distance education. As a result of this new situation, the absence of a regulated school life affected all aspects of the educational process and the practices of all those that were directly involved. With an Act of Legislative Content (Ministry of Education and Religion 2020), distance education via the internet and the existing technology was implemented. In this context, the Ministry of Education and Religion (2020) considered that distance education with modern and asynchronous teaching methods was the most appropriate means for students and teachers to maintain contact with the educational process. Subsequently, distance education became the focus of research for an increasing number of educational sciences, resulting in a large number of studies, both in Greece and internationally (Bokayev et al. 2021; Brom 2020; Zhao et al. 2020). Although several studies have been published regarding education during the pandemic, only a small number of them have focused on homework. Previous research has highlighted certain difficulties, such as the increased stress during the pandemic (Ferraro et al. 2020) and the lack of equipment that is necessary for the successful completion of homework (Clausen, Bunte and Robertson 2020; Vogels Perrin, Rainie and Anderson 2020). The present research examines teachers’ perceptions and practices regarding homework during distance education.
Theoretical Framework

Homework is a timeless and controversial pedagogical issue with supporters who aim at its improvement (Cooper and Valentine 2001), but also opponents who propose its abolition (Bennett and Kalish 2006; Kohn 2006). According to surveys, assigning homework is a daily teacher practice almost everywhere, including Greece. One of the models that have been proposed for the factors that influence the effectiveness of homework is Cooper’s (1989, 87). This model shows the number of factors that influence homework completion (Figure 1).

According to researchers, homework performs didactic and pedagogical functions. The didactic functions concern consolidation, practice and repetition that aim at academic learning and, consequently, at the improvement of school performance. Pedagogical functions concern skills development, such as responsibility, time management, persistence, planning, organization, self-discipline and, in general, the development of self-regulation (Cooper and Valentine 2001).

The negative consequences of homework include students’ physical and emotional fatigue, anxiety, reduction of their free time and disruption of their relationship with their parents, due to the daily conflicts that may arise. In addition, homework may lead to the exacerbation of educational inequalities, since some students do not have the necessary support at home, either because their parents cannot help them due to ignorance or lack of time, or because their parents cannot afford a private tutor for their child at home (Bennett and Kalish 2006; Czerniawski and Kidd 2013; Galloway, Conner and Pope 2013; Kohn 2006; Vatterott 2009). In conclusion, homework is a multifaceted activity, as it involves the complex interaction of many factors in two different contexts, at home and at school (Corno 2000; Trautwein 2007; Warton 2001).