



Challenges and Concerns in 21st Century Education

Edited by
Spyridon-Georgios Soulis
Maria Liakopoulou
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and Alexandra Galani

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PREFACE

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.

ORIENTATION TO EDUCATIONAL CHANGE IN RELATION TO THE IMPLEMENTATION OF THE INDIVIDUALIZED EDUCATION PROGRAM MODEL

ADRIANOS G. MOUTAVELIS
SOTIRIA TZIVINIKOU

Introduction

Individualized Education Program (IEP)

The educational process involves the control and the evaluation of the educational content, the teaching environment, the process and the learning outcomes (Tomlinson 1999). These issues represent points of constant reflection in the realms of Educational Psychology and Didactics (Slavin 2018). In the case of Greece, in General Education schools, education seems to be strongly standardized, closely guided by the Analytic Curricula (AC) and the use of specific, single school textbooks (Flouris and Pasiadis 2003). This close guidance suggests that students coming from different cultural, social and economic backgrounds, who present different abilities and needs, are expected to follow the course of a one-dimensional educational process with limited possibilities of flexibility and adaptation. As a consequence, the educational process is often uninteresting, tedious and leads many students to failure.

In the case of students with special educational needs (SEN) and/or with disabilities (PwD) who attend special education schools (SESSs), the challenges they face and their extensive needs for support make the use of a single school textbook and mass teaching with AC even less feasible. Here, the design and implementation of the intervention is oriented to each student individually; in its entirety, this is the Individualized Education

Program (IEP). It is an individualized supplement to the full program attended by the student's classmates, which at the same time enriches the classroom, the school, and the community (Ministry of Education of New Zealand 2011). Otherwise, in the absence of an IEP, the teachers and therapists working with the student cannot be objectively aware about the progress made so far, whilst the educational intervention lacks direction and has no specific goals and objectives (Yell, Bateman and Shriner 2022).

The IEP is a pedagogical procedure and text of dynamic and evolving nature, which has been developed via collaborative processes between i. the interdisciplinary intervention team supporting the student with disabilities or special educational needs, ii. the student's family, and iii. (perhaps) the student. It aims at identifying the child's present level of development, guiding education with specific goals/objectives and scheduling, and describing the resources used (Moutavelis and Tzivinikou 2019, 9; 2020b).

During the 1970s, a decade which is believed to have laid the foundations of special education in the USA (Heward, Alber-Morgan and Konrad 2017), the Public Law 94-142, Education for All Handicapped Children Act (EAHCA) (1975), initiated and generalized the organized use of the IEP.

The IEP has become the cornerstone of special education across the community in developed countries (Bateman, Lloyd, and Tankersley 2015). It constitutes perhaps the most important document in the files of students with SEN (Wilmshurst and Brue 2018). For this reason, after the US, it began to be implemented in English-speaking countries, such as the UK, Australia, New Zealand and Canada, as well as other countries in Europe and the rest of the world.

Regarding the implementation in Greece, the systematic absence of IEPs from the educational process has been pointed out from early on (Anastasiou and Bantouna 2007). More specifically, in a further investigation of the Greek educational legislation, there appears to be limited legislative systematic approach and guidance, with the result being the expected impact on the effectiveness of the educational intervention, as well as confusion and the inability of implementation in the SESSs (Moutavelis and Tzivinikou 2020a). Half a century after the first legislation in the US and twenty-three years after the first legislative reference on the design and implementation of IEPs for students with SEN in Greece (Education for People with SEN, 2000), schools are unable to implement them, with extensive implications on the quality of the provided education.

Therefore, the IEP model has been created with the application of specific requirements, processes and documents, in response to issues of

scientificity and functionality, while adapting to each individual SES. The effectiveness of the IEP model's implementation is linked to matters of acceptance by the school community itself, since it poses a priori a significant educational change.

Educational Change and its Acceptance by the School Community

The ecosystem approach considers that the school community is an open "living system," which in turn consists of a variety of micro-systems, such as school classes, groups of children, teachers, parents, etc. (Molnar and Lindquist 1993). The school community itself is, at the same time, a sub-system of other, overlying macro-systems, such as those of the local and national community.

In this way, the school interacts with other systems, by receiving a great number of inputs that it tries to translate through a steady process of change and adaptation to new data (Gkari 1996). This ability to adapt to changes enables the school community's system to maintain balance and reduce entropy (Mele, Pels and Polese 2010).

Thus, the management of educational change is important for the school community and may yield sustainable positive development and growth or, on the contrary, crisis; this depends on the members, as well as the environment of the community. It can be defined as a "type 1" change when it is small in scope, and a "type 2" change when it causes greater difficulties and "change in the organizational and operational rules of the whole system" (Gkari 1996, 27). Its categorization can, accordingly, be made as "gradual change," which is limited and progressive, or "profound change" (Kearney and Smith 2009). Gradual change occurs more frequently. It seems to be more easily acceptable because it is linked to the practices hitherto used by the school community, and is often perceived as a safe, conservative way of management that allows members to have control. On the contrary, a profound change is rarer in frequency, as it requires the school community to abandon old practices, assumptions and behaviors. This may cause severe difficulties for practical implementation, confusion, stressful management, and disruption in the school community (Quinn 1996).

Any change in the ecosystem of any organization comes with a cost, which often causes its members to act in denial, cause an obstruction and manifest resistance (Kearney and Smith 2009). At the same time, in recent years more than before, the educational system, and in particular the Greek school community, has been under great pressure to make changes that

would increase their effectiveness and keep pace with modern needs, which are changing exceptionally fast. Even critical issues with positive aspects of social management can induce anxiety and denial. Thus, the strong and constant increase in the use of technology, the multiculturalism of the student population, and the inclusion of students with SEN in the neighborhood schools may provoke reactions among members of the educational community, even if they are positive, necessary and seem self-evident.

Often, the advent of a change increases entropy, creates destabilization in the school ecosystem, causes anxiety, and raises temper and resistance among the partakers. Thus, the question remains as to how the community members will be able to accept the change necessary for the quality of the education provided.

Simultaneously, the rapidly changing modern environment makes it vital for the school community to be receptive to educational change with critical thinking and a positive approach. According to Kearney and Smith (2009), any "gradual" or "profound change" is easier to accept when the principal and the school faculty members are generally open to change, and the wider community supports it.

A school community open to change sees it as an opportunity for collective and individual growth (Fullan 2007). Change is a challenge and its support will give the school community the opportunity to improve its effectiveness (Sidorkin and Warford 2017). In this case, the prevailing atmosphere between teachers and the entire school community is characterized by collaboration. Teachers feel safe and stand out for their enthusiasm regarding new ideas.

In addition, the ecosystems of the local and, by extension, the wider community influence the effectiveness of changes at school. When the local community is supportive of change by providing the school with the stability and durability of the resources and emotional support it requires, change is more likely to be successful (Marshall and Oliva 2010).

Finally, the adoption of practices related to educational innovations (Sidorkin and Warford 2017) and applied methods that have yielded evidence-based practical data (Heward, Alber-Morgan and Konrad 2017), as well as those coming from the school communities themselves with bottom-up approaches (Roche 2017), are expected to contribute positively to the timeless evolution of school communities by improving their effectiveness through the changes they bring.

Purpose of the Research and the Key Question

The implementation of an IEP in a SES is crucial for the educational intervention for students, as well as for the school culture itself. On the other hand, relevant research in Greece is very limited. This study, which is part of a wider research project, investigates whether the participants who stated that their school community is oriented to educational change, identify themselves as positively disposed towards the IEP model.

Method

Participants

In the whole process of initial measurement, implementation and final measurement, 112 faculty members were involved, serving in six primary education SESs in Attica (Table 1).

Table 1. Absolute and Relative Frequencies of Participant Gender and Specialty

		f	%
Gender	female	102	91.1
	male	5	4.5
	non-declaration	5	4.5
Specialty	teachers	57	53.3
	therapists	31	29.0
	kindergarten teachers	13	12.2
	teacher assistants	6	5.6

Procedure

This study is part of a wider research project for the creation and implementation of the IEP model, which began with the conduction of semi-structured interviews with the SES principals (n=6). At the same time, the personal files of fifty students attending the last SES class were checked with the use of an "Information Recording Protocol"; the aim of this was to determine the existence of an IEP or the lack thereof, as well as to identify the manner of recording.

Then, following a study of the Greek educational legislation and the international implementation of IEPs, the model was created by the researchers, and enriched in the course of the implementation with the views of the principals and the faculty of the school units.

At the beginning of the implementation process, the faculty of each SES participated separately in all-day training on the use of the IEP model. There, a series of questionnaires were administered, which included the following: a) participant demographics, b) "Model Efficacy Evaluation Scale" (MEES), c) open-type evaluation questions and participant proposals, and d) the "Faculty Change Orientation Scale" (FCOS).

The implementation of the model in schools was supported by the researchers during the school year via continuous communication.

At the end of the school year, the administration of b) and c) was repeated, with the researchers visiting the SESs.

Means of Data Collection

Faculty demographics. Participants completed their demographic data as regards to their gender, specialty, age, years of service, studies, specialization in special education and the education level of their service.

Model Efficacy Evaluation Scale (MEES). In addition, the SES faculty members who participated in the research completed a questionnaire, which was structured around the sentence: "I think that the IEP model proposed for implementation in my school..." followed by twenty-one questions. Of these, seventeen were positively disposed, such as "showcases a correct process," "is understandable" and "is comprehensive," while four sentences were of a negative nature (fillers), such as "is not applicable." Participants completed a six-step Likert scale (*strongly disagree* to *strongly agree*) on their point of view.

Open-type evaluation questions and participant proposals. Moreover, in the same questionnaire, participants were asked to answer three open-type questions about the model's evaluation: "I like the design and implementation of this IEP model," "I find that this IEP model poses difficulties, while its design and implementation concern me" and "Realistically speaking and based on our resources, I would also propose...."

Faculty Change Orientation Scale (FCOS). In addition, the Faculty Change Orientation Scale (FCOS) was used (Kearney and Smith 2009; Smith and Hoy 2005). This consists of nineteen questions with a six-step Likert scale, (*strongly disagree* to *strongly agree*). According to the original, the nineteen questions form around three factors:

Factor 1: "Faculty openness to change" (F1. FOC). This factor consists of nine sentences (1, 2, 5, 6, 8, 10, 13, 14, 15) and assesses the perceptions of the school community faculty about change, such as "In this school, faculty welcomes change" and "In this school, faculty embraces new ideas."

Factor 2: "Principal openness to change" (F2. POC). This factor consists of six sentences (3, 7, 9, 11, 12, 19) and assesses the principal's receptiveness to change, such as "In this school, the principal balks at new suggestions" and "In this school, the principal is slow to change."

Factor 3: "Community press for change" (F3. CPC). This factor consists of four sentences (4, 16, 17, 18) and assesses whether the school community is pushing for change, such as "In this school, proposals from Special Education Coordinators often produce change" and "Faculty in this school is open to ideas of the parents."

The construction of FCOS predicts the value reversal for sentences 3, 6, 7, 10, 11, 13, 14, 18, 19 before further processing.

The reliability index of the standard scale version for Factor 1 (FOC) is $\alpha=0.87$, for Factor 2 (POC) is $\alpha=0.95$, and for Factor 3 (CPC) is $\alpha=0.87$ (Kearney and Smith 2009).

In addition, Nikolopoulou (2013), in research with a Greek sample of teachers, stated similar satisfactory values in the total of FCOS $\alpha=0.88$, as well as in its individual factors, Factor 1 (FOC) $\alpha=0.87$ and Factor 2 (POC) $\alpha=0.82$, and a low value in Factor 3 (CPC) $\alpha=0.45$. Finally, Markantonis (2013), in similar research, stated high values in the total of FCOS, $\alpha=0.978$.

Results

The main tendency and dispersion indices, as well as the internal consistency indices, Cronbach's (α) for the MEES and FCOS scales and their factors, appear particularly satisfactory overall (Table 2). The reliability of "F3. CPC" appears marginally satisfactory, limited in relation to the other factors, an issue that is also stated in Nikolopoulou's research (2013), perhaps due to her limited number of questions ($n=4$).

Table 2. Cronbach's (α) Main Tendency, Dispersion and Internal Consistency indices for the MEES and FCOS Scales and Their Factors

Scales & Factors	#sent.	MV	DV	α
FCOS	19	4.378	0.618	0.890
F1. FOC	9	4.530	0.739	0.914

F2. POC	6	4.700	0.818	0.839
F3. CPC	4	3.575	0.511	0.512
MEES Initial	17	4.440	0.480	0.926
MEES Final	17	4.857	0.587	0.949

Regarding the discriminant validity of the FCOS scale and its factors, the Table 3 overview showed that the coefficients of the interrelationships were statistically significant. As expected, the highest values appeared between the FCOS scale and its individual factors (F1. FOC, F2. POC, F3. CPC), even though, at the same time, the factors presented no similarly high interrelationship among them.

The Pearson r relevance index was used regarding the key question of the relationships displayed among the participants' statements for the MEES and FCOS scales. This analysis showed a statistically significant, positive correlation between the MEES and FCOS scales, as well as the individual factors of the latter (Table 3).

Table 3. Pearson r Correlation Indices among the MEES-FCOS Scales and Their Factors

	MEES	FCOS	F1. FOC	F2. POC	F3. CPC
MEES	--				
FCOS	0.447 **				
F1. FOC	0.424 **	0.926 **			
F2. POC	0.484 **	0.829 **	0.628 **		
F3. CPC	0.310 **	0.698 **	0.583 **	0.487 **	--

Note: ** $p < 0.01$.

The statements of the participating SES faculty members show a tendency to covariation, with the result being that, as their positive view of the effectiveness of the model increases, their orientation to change as part of the school community also increases. By checking the correlation between MEES and FCOS, as well as its relevant factors, more closely, it becomes evident that the higher values appear between MEES and F2. POC. Participants state that the principal's orientation to change in the school community is an important factor for the implementation of the IEP model.

Discussion

The IEP model was created with a bottom-up approach, emerging from the base of the SES practice, and aiming to fill the significant IEP deficit. It is a comprehensive and already implemented method that, thus, provides the possibility of an immediate generalization for all SESs, an extension to General Education schools, as well as the possibility of its adoption as a central state proposal.

Participants who stated that their school community was oriented towards change said they were positively disposed towards the IEP model. The implementation of the IEP model is related to the specific culture of each school (Yell, Bateman and Shriner 2022), which, in turn, is expressed through the quality of communication. "The key to creating a successful IEP is open communication" (Diliberto 2012, 31).

The IEP model stands for a powerful innovation and change in the Greek SES community. This can be seen in the fact that the change-oriented educational communities, and especially those whose principal was perceived by the faculty members as being open to change, adopted more positive views on the implementation of the IEP model.

With the IEP model, members of the school community are obliged to communicate more regarding the intervention for each student. The same is required to happen between the school community and parents. Increased communication in the long term leads to improved communication in the school, across faculty and between the school and the families. Thanks to their experience in intensive conversation, school faculty members and parents are enabled to set more effective limits and ways of communication, thus, keeping their professional and parental rights, respectively, more intact.

Communication via the IEP model goes beyond the student's "problem" and its simple description, and focuses on the student's environment in an ecosystemic and interdisciplinary way. This intervention is of interest not only in the short/immediate term but also in the long run. And, for this reason, the IEP model emphasizes the setting of long-term goals and short-term objectives with indicative activities, considering the critical issues related to the school's daily life and the future of the student, and also the student's family (Goldman and Burke 2016; Goran *et al.* 2020). In fact, this is done by considering the student's strengths and weaknesses, and particular interests and characteristics, thus, making the child the center of the learning process (personalized learning) (Blackwell and Rossettim 2014), not by simply recording the issues but also via activities in the ecosystem of the school community and the family. The IEP model does not

focus on "what the problem with the student is" but, through overcoming this, on "what we can all do together right now with the child's future in mind."

An important parameter in this communication is the fact that it is no longer limited exclusively to a binary level, e.g., teacher-parent or psychologist-parent, but, rather, is upgraded, via interdisciplinarity, to the group of scientists-parent-student.

The communication proposed by the IEP model limits the feeling of solitude in the class. The teacher or the therapist, now, has to share common issues with colleagues from other specialties and, together, come up with options and objectives for the intervention. In this way, the teacher and the faculty members individually feel more secure about their choices, what they teach and how they approach the student and the family. Moreover, through constant communication, they have a better overview, thus, having a greater recognition of the contribution of other specialists to the intervention and, at the same time, improving their knowledge basis through other disciplines (Stroggilos and Xanthacou 2006). Simultaneously, parents feel more secure regarding the intervention set up for their child, as it becomes the result of an agreement reached by a team of scientists, rather than the personal opinion of one expert.

Improving communication across the school community changes the school culture over time, making it more open, tolerant and responsive to change.

In addition, with the IEP model, each faculty member must propose ways of intervention that will be accepted by the other members of the IEP team. The intervention of a teacher or therapist is not a personal affair anymore, but it is opened to the team and, as a specific proposal, is scrutinized via discussion and evaluation by colleagues from other specialties. Thus, each member of the IEP team is, now, indirectly obliged to better describe their thoughts and to study them further. It is precisely this exposure to a peer group that causes the feeling of security that contributes to the growth of each scientist.

In conclusion, the educational change brought to schools by the implementation of the IEP model promotes the educational intervention in special education. The IEP model itself is an organized and applied method, which, in the case of generalization, would eliminate the systematic absence of an IEP and, at the same time, constitute a strong innovation and a positive change in the school community of special education in Greece.

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