



DISTANCE LEARNING EXIT ECONOMIC MODEL

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Abstract

At the beginning of 2020, with the onset of the pandemic, the traditional learning environment for learners drastically changed globally. Since then, most students/teachers have started and practiced distance and virtual learning/teaching. Thus, a technological breakthrough in virtual learning has followed. In connection with this, many countries worldwide have commenced allocating additional financing and funds for educational institutions' technological improvement and development. The long-term stay in distance learning has revealed and highlighted new problems students face: their knowledge level has decreased, they lack socialization skills, and they face psychological and physical health problems. Due to this negative impact on students, a need to research and evaluate how much the EU countries allocated to solve the distance learning-caused problems and what programs or models they prepared has emerged and encouraged further studies. The research has found that many countries increased their allocations very minimally, e.g., 0.0.1%, but some increased their available budgets to 32%. Notably, most countries did not separate distance learning exit funding from distance learning preparation funding. Based on the problems the countries saw, only a few states identified withdrawal from distance learning as a problem. Considering this, we set ourselves the goal to evaluate exit models from distance learning and allocated funding amounts.

To stabilize the impact of unforeseen events, such as epidemics, pandemics, military conflicts, etc., on learning processes, it is necessary to have sustainable solutions for managing learning processes in such situations. As revealed by the COVID-19 situation, the stability and continuity of the learning process remains very important even in emergencies. Stable and continuous learning can be ensured by practising sustainable distance learning, which must be based on sustainable tools. The results of this research are significant in terms of improving distance learning and providing qualitative and sustainable education.

The current situation stimulates hybrid learning, which is increasingly becoming the foundation of sustainability in the education sector. Thus, to reverse the damage caused by distance learning and create a sustainable environment for blended learning, it is necessary to eliminate the negative effects of distance learning. This challenge will lead to the need for new sustainable blended learning programs.

The following objectives were planned to achieve the goal:

- to evaluate the global practice of exit from distance learning in the context of sustainability;
- to determine the scope of funding for pandemic management;
- to evaluate the amounts of funding allocated to manage pandemic-caused consequences and the GDP ratio.

Research methods: mathematical-statistical analysis, empirical analysis, and analysis of scientific literature.

KEY WORDS: distance learning; distance learning exit model; distance learning financing; COVID-19 pandemic, sustainability, sustainable education.

JEL classification: A29, I23

Introduction

When evaluating the economic consequences of distance learning, the international organization OECD distinguishes two streams of impact on the economy. Firstly, discontinuing contact learning has resulted in lost income in the long term, and secondly, in a decline in workforce skills, which has led to lower economic growth and affected overall societal well-being [35, 37].

It has to be noted that education and training ensure the development of people's cognitive skills, which make people more productive in performing various assigned tasks at work, primarily related to the knowledge economy. In addition, education equips people with the knowledge and skills to generate and apply new ideas and innovations that enable technological progress and overall economic growth. The authors we studied for this research claim that the existing research base allowed them to evaluate the financial losses caused by distance learning. Although it is challenging to evaluate learning losses, it is possible to assess the economic impact. Students' cognitive skills and the associated costs experienced the most significant impact. The authors highlight the consequences of school closures on social-emotional relationships and motivation of children

affected by distance learning, with a particularly immense effect on teenagers. This was also caused by the lack of communication with classmates and psychological stress in families during long periods of activities in small, closed areas, i.e., small apartments and shared rooms [36, 37].

Back in 2006, Heckman noticed that a particularly important stage of education is childhood, which greatly influences the child's further development [38, 46].

During the conducted research, it has been found that every additional year of education increases the student's income by 7.5 -10%. In other words, distance learning reduces the income of future students by about 3%. In addition to drastically fallen learning achievements, the loss of cognitive skills due to school closures and the probable issue of recidivism in the future is not researched yet [37, 27]. Based on the information provided, it can be assumed that students who spend more time in distance learning will earn lower wages in the future.

The studies have found that the negative impact of distance learning will reduce national GDP by 1.5% over the rest of the century, especially if reopened schools do not meet the same standards that were observed before they were closed [37, 23]. Research has been conducted

to assess the impact of distance learning on students aged 6-19.

According to some other authors, the UNESCO highlights the relevance of sustainability in the education sector over the period of no less than ten years, and the United Nations Millennium Development Goals (MDGs), focused on the development of education in all age groups, provide an even longer period of sustainability [51, 52]. The United Nations has the ten-year vision of the sustainable development of education, based on the transformations in values, attitudes and lifestyles to ensure a sustainable future and evolution of societies. The authors argue that this vision has been useful in promoting curriculum sustainability reforms. The integration of social, economic and environmental issues into curricula is also noted, but sustainable knowledge in specific areas should become the core of this integration [53].

It should be noted that previous studies revealed the significance of distance learning as a sustainable tool for general education in emergency situations. This means that the relevant measures must be selected to manage the process of education in emergencies, such as the COVID-19 pandemic. The use of innovative means to transfer knowledge is not sufficient if the issues of sustainable socialisation are not considered and the measures for ensuring students' psychological comfort and physical education are neglected. This was emphasised by the experts in the focus groups who treat the educational process as a complex and do not prioritise any of the areas

Materials and Methods

During the study, the impact of distance learning on students, teachers, and parents was evaluated using a questionnaire survey in various aspects such as students' knowledge level, intelligence, socialization skills, mental and physical health, and intelligence. In order to more accurately evaluate the impact on students' knowledge, the student learning achievements, the dynamics of referrals to psychologists, and the dynamics of reported health problems were also assessed. We used the Wechsler short-scale personalized data of 2017, 2018, 2019, 2021, and 2022 obtained from the conducted research to evaluate the impact on student intelligence.

The literature analysis and multi-level/stage focus groups with experts and representatives of government authorities and management institutions were used for creating the model.

We used reliable statistical data to evaluate the financing volume and performed calculations comparing the financing volume with the GDP of the countries.

Focus groups were organized with the aim of identifying the most effective tools of the model.

Sustainability in distance learning

Other authors claim that in considering the sustainability of distance education provision against this background, it may serve us well to recap the original inspiration and rationale for distance education. Dhanarajan [54], for example, mentions the following factors that supported the evolution of distance education,

such as: "The political desire to increase the provision of learning, the economic desire to cut the cost of education while increasing participation levels, the social desire towards egalitarianism to ensure equity and equality of opportunity and at least in some locations, and educational desire to improve the relevance and quality of the curriculum" [55]. Other authors claim that there is no study taking into account the view of all internal stakeholders (i.e. students, academic staff, IT specialists, teachers, business representative and managerial staff) together, and this can be taken as a research gap. Also, the limited number of studies focusing on sustainability in the distance education literature is another research gap [56].

Some researchers define distance education with regard to e-teaching and online teaching as a form of teaching when teachers and students are physically separated, and various technologies are used to facilitate communication between the teachers and students [57]. In this case, teachers and students do not meet face-to-face, and teaching is provided through the Internet [58].

Researchers highlight the characteristics of distance teaching which depends on the level of the use of the Internet. When the level of the use of the Internet is medium, distance teaching can take place outside of classrooms. Distance correspondence teaching via e-mail, as well as remote examinations are also possible [59].

Other researchers note that students avoid asking questions in front of cameras because they feel uncomfortable. The quality of the technical equipment also significantly affects the sustainability of distance teaching/learning [60, 61].

Many educational institutions express their concerns regarding the assessment of the quality of distance teaching/learning, which they consider to be a complex process and believe that the involvement of different stakeholders would be useful [62]. Multi-criteria group decision-making (MCGDM) is a methodology which involves multiple criteria and requires the consensus of multiple decision-makers with different interests [63]. This method could be useful for stakeholders when defining the criteria for assessing the quality of distance teaching. The prioritization of the criteria would allow stakeholders to decide on a policy for the effective management of the strategic resources and time in order to create and extend the service infrastructure and improve the processes of teaching and learning [64]. In this case, it is important that each element of distance teaching contributes to the general education policy and helps to keep up with the global tendencies of knowledge acquisition and management [65].

Many previous studies tended to focus on the interests of the internal stakeholder groups. Some of the studies considered the attitudes of a particular group, while others researched the views of more than one group. It should be noted that many previous studies analysed the critical factors of success, determined by student perceptions [66, 67], the perspectives of students and the academic staff [68, 69, 70], and the barriers to distance teaching/learning from the position of the academic staff [71]. Some other authors identify a few factors and compare them from the positions of the two stakeholder groups – ICT experts and lecturers [72]. To

fill the gaps identified in previous studies, the AHP method [73], the ANP and TOPSIS methods [74, 75], and the ARAS method for e-learning course selection [76] are recommended.

The literature analysis proposes that the current education policies have not been unified in terms of distance teaching, though this area is considered promising and individual authors offer various solutions.

Results

The experts and members of the European Commission's European Expert Network on Economics

of Education (EENEE), K. De Witte and M. Smet, analysed the additional economic aspects that emerged and were caused by the pandemic. Also, they presented the amounts of allocated additional funding differentiated by student age respectively (see Table 1), where, e.g., in Belgium, the regions of Flander and Wallonia, in 2021-2022, the total additional costs amounted to 353 million euros [43]. The data are presented in order to assess the amount of funds allocated by the states for distance education:

Table 1. Costs by country [1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20,21, 22, 23,24, 25, 26, 27, 28, 29,30, 31, 32]

Country	Explanation of Additional Costs (allocated for)	Total Amount of Costs (in million/billion euros)	Amount per Student (in euros)
Belgium (Flander and Wallonia regions, in 2021-2022) [1, 3, 4, 5]	primary education up to 4th year	15 M	25
	primary education of 5th and 6th year	45 M	290
	secondary education	232 M	510
	dual learning methods and special needs	10 M	510
	recruitment of additional teachers	147 M	
	strengthening student counselling centres	36 M	
	summer schools	21.8 M	
	mitigating the impact of the pandemic on secondary education institutions	19 M	
Estonia (only private schools provided additional funding) [6]	private education institutions, based on their interest profile	15 M	
	youth education	1.5 M	
	private secondary education institutions	4.3 M	amount ranged from 10 to 50, depending on the severity of the COVID-19 pandemic restrictions
	minimizing the spread of coronavirus	6 M	40
	summer camps	6 M	
Finland [7, 8, 9]	preschool and secondary education	70 M	
	support of learning, development, and well-being	14 M	
	compensate for the impact of the coronavirus crisis	17 M	
	one-time funding for education equality to help municipalities reduce the education gap between richer and poorer social areas	67.8 M	
Greece [10, 11, 12]	supply of laptops and tablets to schools in 2020	12.1 M	
	supply of tablets to families with an income of up to € 6,000	112 M	200
Italy [13, 14]	adaptation of education institution premises while recruiting new/additional teaching staff	1 B	
	learning adaptation for disabled children	331 M	
	"Digital Innovation and Training Workshop Fund" (Italian Healing Decree)	85 M	
	implementation of the measures for the "COVID-19 Epidemiological Emergency Foundation"	400 M (in 2020) + 600 M (in 2021)	
	summer "bridge" programs	510 M	
Lithuania [15, 16, 17]	providing schools with laptops and tablets through the European Social Funds (ESF) in 2021	6 M	
	providing individual counselling to students who have learning difficulties due to distance learning	1.348 M	
	volunteers from non-governmental organizations to provide teaching/learning support or supervision in the education field	250 000	

	institutions		
	creation of thematic videos and provision of open consultations for the graduates, teachers of the graduate students, and/or teachers who prepared students for maturity examinations	160 000	
	supporting the learning-oriented children's summer camp programs through various non-formal education activities	300 000	
	counselling students with learning difficulties	650 000	
Malta [18]	mitigating the impact of the pandemic on children	30 M	
Netherlands [19, 20, 21]	primary, secondary, and special education	5.8 B	
	secondary vocational and higher education	2.7 B	
	additional/supplemental benefits for students	645 M	
Portugal [22, 23, 24, 25, 26, 27]	artistic education to mitigate the impact of the COVID-19 pandemic	10 M	
	acquisition of 250 000 laptops, 4G electronic devices, headphones and backpacks	62.5 M	
	procurement of 15 000 additional computers in 2021	4.5 M	
	digitalization of school - funded by the program "Economic and Social Stabilization"(PEES)	400 M	
	providing schools with digital learning materials - funded by the "Recovery and Resilience Plan" (RRP)	500 M	
Romania [28, 29, 30]	procurement of internet-connected tablets for students	30.5 M	
Slovakia [31, 32]	tutoring in the first project, "Together," to help students from families with social needs	500 000	
	the later phase of "Together Wiser" that covered all eligible schools	1 M	

Based on the statistical information given in Table 1, we can see that the Netherlands allocated the most significant funds to control the consequences of the Covid-19 pandemic, i.e., 9.145 billion euros. Lithuania was in second place, having allocated - 1,355.66 billion euros or 3,577.7 euros per student/teacher, which, applying a conversion into hours, equals 357.77 hours with an additional 8 hours per week for a student. It allows concluding that the entire program for eliminating the consequences of the COVID-19 pandemic would take more than 11 months.

Other authors classify cost information into the following categories [47, 48]:

- General financing (GEN);
- Financing for purchasing IT equipment (ICT);
- Investment in infrastructure (INF);
- Prevention and protective measures (PRE);
- Recruitment of additional teachers, bonus remuneration for teachers (TEA);
- Summer programs (SUM);
- Student counselling and support (COU).

Table 2. Additional funding by cost category [1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32]

Country	Category of Costs						
	GEN	ICT	INF	PRE	TEA	SUM	COU
Belgium (Flanders)			X		X	X	X
Belgium (Wallonia)	X	X		X	X		X
Estonia	X						
Finland	X	X					
Greece		X					
Italy		X	X	X	X	X	
Lithuania		X					X
Malta	X						
Netherlands	X				X	X	
Portugal	X	X			X		
Romania		X					
Slovakia	X						

Notably, the evaluation and measurements of students' knowledge levels done after the first wave of the Covid-19 pandemic did not show such a significant decline (The assessment was made after analysing the achievements of students in different countries, the sources are provided). However, the subsequent measurements of the student's knowledge level indicated a more substantial reduction in the knowledge level. Due to this fact, according to other authors, from September 2020, human capital formation was linked to income [39], employment [41], and general well-being [40]. According to

Kaffenberger, theoretical models show that a decrease in student knowledge level was observed later over time [42].

The experts of the European Commission, K. De Witte and M. Smet, stated that the funding allocated to eliminate the damage caused by distance learning to students was insufficient [43].

In addition, it is also shall be noted that when assigning additional funds to students to eliminate and fight the damage caused by distance learning, financial allocations in most European countries were very limited:

Table 3. Growth of additional costs per student [1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23,24, 25, 26, 27, 28, 29,30, 31, 32]

Country	Growth of additional costs per student percentage
Belgium (Flanders)	4.82%
Belgium (Wallonia)	0.43%
Estonia	4.77%
Finland	1.59%
Greece	2.16%
Italy	3.96%
Lithuania	0.68%
Malta	9.15%
Netherlands	32.22%
Portugal	13.55%
Romania	0.80%
Slovakia	0.05%
AVERAGE	3.06%

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Table 4. Funds allocated to fight the pandemic in the field of education as a percentage of GDP [1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23,24, 25, 26, 27, 28, 29,30, 31, 32]

No.	Country	GDP in 2022, in billions of US dollars	Allocated funds, as a percentage of GDP
1.	Belgium	579	0,09
2.	Estonia	38	0,09
3.	Finland	281	0,06
4.	Greece	219	0,06
5.	Italy	2 000	0,09
6.	Lithuania	70	1,93
7.	Malta	18	0,17
8.	Netherlands	991	0,92
9.	Portugal	252	0,39
10.	Romania	301	0,01
11.	Slovakia	115	0,002

According to the allocated funds as a percentage of GDP to solve the problem, Lithuania stands out, having allocated more than twice of funds (1.93%) compared to others, but this, however, was not sufficient to overcome the challenges. Slovakia allocated the least funds (0.002 %) [34] (table 4).

The evaluation of the emerging challenges caused by the Covid-19 pandemic cleared a need for creating a model for the distance learning (re)organization that could help eliminate the negative impact of the coronavirus on the student's education, physical and mental health, and socialization (table 5).

Moreover, it should be noted that when comparing the increase in funding with the previous one in 2017, the highest growth was observed in the Netherlands, while Lithuania being in second place, dropped sharply towards the end of the list (table 3). Based on the results of the research conducted by the authors, the developed distance learning exit model is presented:

Table 5. Distance learning exit model (The model was created based on the R&D research conducted by the authors, the duration of the research is 24 months)

Action	Aim	Method	Time used for evaluation	Remedial measures	Time used for the implementation of measures	Costs in euros per hour
Student IQ Evaluation	To define student IQ changes	Wechsler Short IQ Scale or similar method	60 min per person	Wechsler Short IQ Scale, testing of all students	60 min per person	45
Evaluation of students' learning achievements and progress situation	To define student learning results and learning load changes	Analysis of student learning achievements at school Research instrument is a research questionnaire (appendix No. 1)	3 hours	Prepared plan of measures provides for the following: - measures for improving the quality of teaching and learning (applied educational methods, assessment, attendance, etc.) - student assistance/support measures (consultations, support plans, cooperation with parents, etc.) - means of regulating students' workload (assignments for assessment, homework, the competence of students' learning ability, etc.)	80 hours	10
Identifying gaps in students' knowledge	To identify gaps in the knowledge of students that were caused by distance learning	Analysis of students' learning achievements at school Subject knowledge verification tests	8 hours	Based on the results, preparing/adjusting individual learning programs according to subjects, providing individual support/gap measures for students	80 hours per subject	10
Evaluation of the available IT infrastructure and provision	To determine the current state of the available IT infrastructure and provision of teachers and students with IT equipment and tools	Research instrument is a research questionnaire (appendix No. 1)	90 min	Acquisition/rental of required infrastructure tools/measures	-	15
Evaluation of digital learning environment and content	To determine the presentation and adequacy of digital learning environments and content used	Research instrument is a research questionnaire (appendix No. 1)	90 min	- Acquisition/rental of the necessary digital learning environments - Training of students and teachers in the use of digital environments - Joint agreements on the purposeful use of environments, methods, and means of content presentation	-	15
Evaluation of teacher and student digital competency gaps	To identify teacher and student digital competency gaps	Research instrument is a research questionnaire (appendix No. 1) SELFIE tool recommended	90 min	- Organization of necessary training - Incorporating elements of digital competence development into subject curricula	24 hours	10
Identification of	To identify gaps in	Research	90 min	Based on the results of	180 hours	10

gaps in the teaching, learning, and assessment processes in distance learning	the distance education, learning, and assessment process	instrument is a research questionnaire (appendix No. 1)		the survey, the following measures are planned: - elimination of gaps in students' learning (measures to compensate for subject knowledge and learning losses) - changes in the existing procedure for assessing students' achievements and learning progress		
Evaluation of assistance/support measures for teachers and students	To identify existing assistance/support measures for students and teachers	Research instrument is a research questionnaire (appendix No. 1)	90 min	Provision of individual assistance/support measures for teachers and students, summer camps, etc.	90 hours	10
Determining student engagement in the distance learning process	To evaluate students' motivation and level of cooperation during distance learning	Research instrument is a research questionnaire (appendix No. 1)	90 min	Based on the results of the study, to adjust/create the student motivational system, including the elements of distance learning that increase student motivation and cooperation (e.g., uploading and storing lesson material in digital environments, providing the possibility of consulting with teachers in a distance learning environment, organizing hybrid/mixed education, etc.)	80 hours	10
Evaluation of students' physical state	To evaluate changes in students' physical activity during distance learning	Research instrument is a research questionnaire (appendix No. 1) Tests for the evaluation of student physical capacity	90 min	Based on the study and physical capacity evaluation results: - to assign more tasks during physical education lessons that strengthen the weakest components of physical capacity (HR, muscle strength, endurance, flexibility, balance, etc.) - to cooperate with students' parents in providing recommendations on measures to improve children's physical activity - to organize physical activities during lessons and breaks; - to purchase ergonomic school furniture (e.g., adjustable height desks)	90 hours	10
Evaluation of students' social-psychological state	To evaluate the need for students' social-psychological assistance	Research instrument is a research questionnaire (appendix No. 1) Performing secondary data analysis	90 min	- Psychologist and social worker-teacher consultations - Child Welfare Commission's (VGK) student support plans. - Student involvement in activities for the development of social skills (preventive programs, social projects, social skills, educational groups, non-formal education activities, etc.)	48 hours per student	10

Taking international practice and research into account, we created a distance learning exit model to eliminate the damage caused by distance learning to students' knowledge, mental and physical health, as well as students IQ. In the case of Lithuania, we also evaluated the need for funding to implement this model. The calculations were made based on the average hourly salary of a teacher in Lithuania.

Notably, the increase in financing after the pandemic period in Lithuania was minimal, and compared to the previous period, it went up by only 0.68 %. Based on the evaluation of the common need for funds results by applying the model created as the example of Lithuania, the funding per student amounts to 6,795 euros when calculating the teacher's salary at 10 euros per hour. According to the 2023 data in Lithuania, there were 344,420 students in 2022-2023.

Therefore, considering this fact and in order to apply the created exit model to eliminate the pandemic-caused adverse consequences in education, a total of 2,340,333,900 euros would be needed for the entire number of students.

When modelling the future EU growth rates with an estimated target GDP inflation of 3%, the growth rate can be used to estimate the future income of the EU countries in 100 years as well as the possible losses due to distance learning can be evaluated. Considering that the average GDP growth rate in the EU is 3.54% after 100 years, the EU's GDP would increase by 354%, provided that the same growth rates are maintained. Another important estimated figure is that, according to the data of 2022, the EU GDP was 15.8 trillion euros or 16.6 trillion US dollars, which means that in 100 years, under the same conditions and growth rates and without changing the composition of the EU, the EU GDP will be 55.93 trillion euros or 58.76 trillion US dollars.

Having the same conditions when distance learning amounted to 1.5% of the EU GDP loss due to distance learning caused by the COVID-19 pandemic, the EU will lose about 0.84 trillion euros or 0.88 trillion US dollars and reach 55.09 trillion euros or 57.88 trillion US dollars during the period researched.

Other authors claim that the world GDP growth rate will be even faster, and the world's economy will grow by 400% in 50 years and reach 250 trillion US dollars [35]. Based on these estimates, it can be anticipated that after 100 years, the growth of the world economy should reach 800% and exceed 1000 trillion US dollars. In that case, the damage caused by distance learning would exceed 1.5 trillion US dollars.

When addressing the issue of sustainability, some authors argue that although contact learning is more effective, distance learning is more accessible, especially in conditions such as the COVID-19 pandemic. The authors agree that distance learning is obviously not equivalent to contact learning in terms of sustainability. Thus, blended learning is seen as a sustainable alternative [53].

Discussion

Many countries researched in this study did not divide the problems caused by the coronavirus into stages and therefore allocated the funds to general financing

(GEN). The funding was often directed to facilitating access to distance learning, i.e., purchasing IT equipment for distance learning, creating programs, etc. Notably, this was also distinguished by the majority of analysed authors and the structure of funds allocated to the education sector they surveyed. We though studied the problem in more detail. As a result, with the detailed analysis of both positive and negative consequences of distance learning, we could distinguish the damage caused by distance education to students' physical and mental health, socialization, and knowledge. Based on the conducted research, we created a distance learning exit model and provided an algorithm for its application. Contrary to the opinion of other authors, in our opinion distance education brought more harm to children of this age. Also, we assessed the financial need for the model application.

The conducted studies showed that in order to apply the created model fully, 6,795 euros should be intended for each student. The required budget can be estimated depending on the number of students in the country. It should be noted that depending on each country's curriculum, the model can be adjusted, and the hourly salary of teachers must also be taken into account. The financing of the model was evaluated based on the actual circumstances in Lithuania, and respectively, an hourly pay of 10 euros for teachers was intended.

Conclusions

In response to the crisis caused by the pandemic, many EU member countries increased the education budget to finance short-term and long-term damage to students' knowledge. Additional set funding ranged from 2 euros per student in Slovakia to 2,795 euros per student in the Netherlands. The median was 163 euros. Relating these amounts to current expenditure, we see that this corresponds to an increase in public spending on education of 0.05% in Slovakia and 32% in the Netherlands. The average increase was around 3% [43, 44, 45].

Notably, many countries understood that the right way to deal with the COVID-19 pandemic challenges in education was to provide students and teachers with IT equipment, devices, and tools which used the primary funding.

After evaluating the common need for funds results by applying the model created as the example of Lithuania, the funding per student amounted to 6,795 euros when calculating the teacher's pay of 10 euros per hour. Taking into account the fact that according to the data of 2023, there were 344,420 students in Lithuania in 2022-2023, therefore, in order to apply the created model of exit from the pandemic, 2,340,333,900 euros would be needed for the entire number of students.

According to the allocated funds from the GDP to solve this problem, Lithuania stood out, having allocated two times more funds (1.93%) than others, but it was insufficient to solve the challenges. Slovakia allocated the least amount of funds (0.002%).

In order to implement a sophisticated distance learning exit model, the funds allocated to the education sector are insufficient.

The conducted studies showed that to apply the created model fully, the amount of 6,795 euros per student should be intended. The required budget can be estimated according to the number of students in each country. It should be noted that depending on each country, the curriculum model can be adjusted, and the hourly pay of teachers shall also be taken into account (the financing of the model was evaluated and estimated based on the actual circumstances in Lithuania, with a provided hourly pay of 10 euros for teachers).

When modelling the future EU growth rates with an estimated target GDP inflation of 3%, the growth rate can be used to estimate the future income of the EU countries in 100 years as well as the possible losses due to distance learning can be evaluated. Considering that the average GDP growth rate in the EU is 3.54% after 100 years, the EU's GDP would increase by 354%, provided that the same growth rates are maintained. Another important estimated figure is that, according to the data of 2022, the EU GDP was 15.8 trillion euros or 16.6 trillion US dollars, which means that in 100 years, under the same conditions and growth rates and without changing the composition of the EU, the EU GDP will be 55.93 trillion euros or 58.76 trillion US dollars.

Having the same conditions when distance learning amounted to 1.5% of the EU GDP loss due to distance learning caused by the COVID-19 pandemic, the EU will lose about 0.84 trillion euros or 0.88 trillion US dollars and reach 55.09 trillion euros or 57.88 trillion US dollars during the period researched.

World GDP growth rate will be even faster, and the world's economy will grow by 400% in 50 years and reach 250 trillion US dollars [35, 33]. Based on these estimates, it can be anticipated that after 100 years, the growth of the world economy should reach 800% and exceed 1000 trillion US dollars. In that case, the damage caused by distance learning would exceed 1.5 trillion US dollars.

The United Nations has the ten-year vision of the sustainable development of education, based on the transformations in values, attitudes and lifestyles to ensure a sustainable future and evolution of societies.

Distance learning is obviously not equivalent to contact learning in terms of sustainability. Thus, blended learning is seen as a sustainable alternative.

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 Ψηφιακή Μέριμνα II - Κοινωνία της Πληροφορίας Μ.Α.Ε. - Κ.Τ.Π. Μ.Α.Ε. (ktpae.gr)
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 Costul standard per elev, pentru anul 2021, aprobat de Guvern. Nicio creștere pentru salarii, dar o majorare până la 36% în mediul rural pentru componenta cheltuielile cu pregătirea profesională, evaluarea periodică a elevilor, bunuri și servicii - Edupedu.ro
 Guvernul României trebuie să dubleze cât mai repede fondurile investite în educație | UNICEF Romania
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