

CHALLENGES FOR THE HUMAN RESOURCES IN THE FIELD OF EDUCATION DURING THE COVID-19 PANDEMIC*

Emil LAZĂR¹, Florentina Ecaterina JOGA (COSTEA)²

DOI: 10.52846/AUCPP.2023.1.05

Abstract

The article provides the results of a research on the specific aspects of the teaching process in Romanian schools during the COVID-19 pandemic. Teaching staff have an important role in the organization of the school and the implementation of the teaching-evaluation process (not only during the COVID-19 pandemic), by providing clear information on the teaching process, they contribute to the efficiency of the education field, they represent authority for students and their parents (informing about the teaching process and other relevant aspects related to their education during the COVID-19 pandemic), supports communication with different support materials (either digital materials through digital technologies or printed materials).

Key words: *Human resources in education; Teaching-evaluation process; Digital technologies.*

1. Introduction

Among the "flagship initiatives" of the European Union for the current time span, "increasing the skill level of the workforce" is correlated with the field of education and training, being approached from the perspective of the education system in Romania.

The General Secretariat of the Government (2020, p. 78), taking the directions of the Europe 2020 Strategy, states that "if we are going to invest 3% of the GDP in Research and Development, we should ensure that we have researchers, qualified scientists and engineers to use these resources wisely".

This is just one of the measures envisaged for the pre-university sector, the approach being integrated and including investments in the professional training of teaching staff; in fact, the reform of the continuous professional training and the evaluation of teaching staff.

* This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. Authors retain the copyright of this article.

¹Lecturer, Teacher's Training Department, University of Craiova, Romania, e-mail address: emil.lazar@edu.ucv.ro, corresponding author

²PhD Student, PhD School of Accounting, Academy of Economic Studies, Bucharest, Romania, e-mail address: jogaflorentina20@stud.ase.ro

Complementarily, investments in the training of teaching staff, according to an analysis by the American Chamber of Commerce in Romania (AmCham Romania, 2021, p. 34), presuppose "the adaptation of teachers' skills and abilities to the specific educational needs of an increasingly dynamic and digitized society".

The measure is required due to the influence of human capital for the Romanian educational system, whose contribution is related to the systemic problems found in the analysis: the school dropout rate, the results of students in national and international assessments, the functional illiteracy rate, etc.

The impact of the efficiency of human capital in Romanian education is not only immediate: this reality places Romania last in the European Union in terms of human capital development in the DESI 2020 index (Digital Economy and Society Index).

The crisis caused by the COVID-19 pandemic has highlighted a series of vulnerabilities of the pre-university education system in Romania. Among them, the precariousness of digital skills among teachers and students. Developing digital skills is an imperative priority. It is a measure imposed by the reality of the COVID-19 and post-pandemic period and decided by the Digital Education Action Plan of the European Union.

AmCham (2021, p. 37) sees as the main measure "the adoption of new technologies in the didactic activity, supplemented by ensuring their use and ensuring connectivity to the Internet". The context of the proposed measures is a complex one, "the digitization of education, together with the creation of open educational resources, contributing to reducing inequities in the system and improving access to education for students from different backgrounds".

Among the conclusions of the Council of the European Union on combating the crisis caused by the COVID-19 pandemic in education and training (2020, p. 4) is mentioned the reality that "the closure of these institutions was a particular challenge for students that were disadvantaged from a socio-economic point of view, and teachers had to adapt quickly from face-to-face teaching to distance teaching, even though not all teachers had the experience, confidence, knowledge, skills and competences to organize and carry out distance teaching activities effectively".

Both in the analyses carried out and, in the recommendations, made regarding "the lessons of the pandemic for the field of education, the main measures target human capital, teaching staff", (2020, p. 3). All support measures are focused on this type of capital, with priority, both during the pandemic caused by COVID-19 and as a perspective, in the post-pandemic period.

2. Methodology

Starting from the considerations regarding the COVID-19 pandemic at the European level in the field of education and training, research carried out between November 2020 and June 2021 in Romanian pre-university education aimed to collect data related to the teaching process during the pandemic.

The name of the research was *Online school and its challenges during the pandemic* and the questionnaire was applied through the Google Forms platform, it

included 12 items: the first 9 verify the announced problem, the last 3 are socio-demographic items.

The research aims to validate the following hypothesis: There are significant differences in the *teaching process during the COVID-19 pandemic* depending on the environment in which the school is located, the didactic degree, the level of education.

In this research there was a number of 522 teachers who participated, of which 298 teach in urban schools and 224 teach in rural schools. Depending on the level of education, 71 teachers teach at the pre-primary level, 128 teach at the primary level, 227 teach at the secondary level and 96 teach at the high school level. Depending on the didactic degree, 33 of the teachers are beginners, 83 of the teachers are permanent, 91 have the didactic degree II and 315 have the didactic degree I.

Dependent variables: *Support materials and suggestions for learning; The platform used; Participation in professional development activities in the digital field before and after the pandemic; How the costs were covered; The challenges encountered in the teaching process.*

Independent variables: *The environment in which the school is located:* urban, rural; *Didactic degree:* beginner, final, degree II, degree I; *Education level:* pre-primary, primary, secondary, high school.

2.1. Results Analysis

The statistical analysis of the results was carried out by means of the statistical program SPSS.20. The statistical techniques, which were used according to the purpose of the research and the usefulness of the information, were *Frequency Analysis; t-test for independent samples; Simple ANOVA (One-Way) analysis of variance; Chi-square test of association/independence; The Bonferroni test* (Labăr, 2008, p. 67).

Subjects' responses to items 1, 2 and 9 regarding *the ways of delivering materials and tasks or learning cues to students* (item 1) *online platforms or other means of communication used in online teaching* (item 2) (Means on a scale of 0-4) and *the challenges that teachers experienced in organizing the teaching process during the COVID-19 pandemic* (item 9) recorded the following median (Table 1):

Table 1. Means of responses to (item 1), (item 2) (Means on scale 0-4) and (item 9) (Means on a scale from 0-5)

	Means
<i>The way materials and tasks or learning cues are delivered to students (item 1) (Means on a scale from 0-4)</i>	
Students are provided with digital materials through digital technologies	3.44
Students are provided printed materials (personally visiting students, sending shipments and using other means of arranging delivery)	1.17
Parents/guardians collect printed materials from the teacher	0.97
<i>The challenges that teachers experienced in organizing the teaching process during the pandemic COVID-19 (item 2) (Means on a scale from 0-5)</i>	
Technical issues (lack of infrastructure in schools)	2.17

Your lack of digital skills	1.34
Students lack of digital skills	2.39
Lack of devices you can use at home	1.87
Lack of devices that students can use at home	2.26

Subjects' responses to the items regarding *participation in professional development activities related to the development of digital skills before the onset of the COVID-19 pandemic* (item 4), *participation in professional development activities related to the development of digital skills after the onset of the COVID-19 pandemic* (item 5), *participation in different types of professional development activities related to the development of digital skills after the onset of the COVID-19 pandemic* (item 6 multiple answers), *bearing the costs for professional development activities related to the development of digital skills after the onset of the COVID-19 pandemic* (item 7) and *aspects of managing your work that were most demanding/stressful* (item 8, multiple answers) are presented in Table 2.

Table 2. Percentages registered for (item 3), (item 4), (item 5, multiple answers), (item 6) and (item 7, multiple answers)

	Percentages
<i>Have you participated in professional development activities related to the development of digital skills before the onset of the COVID-19 pandemic?</i> (item 3)	
Yes	63 %
No	37 %
<i>Have you participated in professional development activities related to the development of digital skills after the onset of the COVID-19 pandemic?</i> (item 4)	
Yes	78.9 %
No	21.1 %
<i>Participation in various types of professional development activities related to the development of digital skills after the emergence of the COVID-19 pandemic</i> (item 5, multiple answers)	
Courses organised and paid by the school	23.4 %
Free courses/tutorials	64.8 %
Courses paid by yourself	24.5 %
Exchange of experience and best practices with colleagues who have digital skills	35.8 %
<i>Were the costs for professional development activities related to the development of digital skills after the onset of the COVID-19 pandemic borne by you?</i> (item 6)	
Yes	50.6 %
No	49.4 %
<i>Aspects of your activity management that were the most demanding/stressful</i> (item 7 multiple answers)	
Planning and organising online teaching	35.1 %
Planning and organising online evaluation	43.7 %

Monitoring the assimilation of knowledge/acquisition of skills by students	57.3 %
Monitoring the implementation of protective measures related to students' health	10.5 %
Communication with parents	7.1 %
Others – Conception of the necessary digital materials.	1 %
Others – Quality of internet access	0.8 %

2.1.1. Comparisons by school environment in regards to the teaching process during the COVID-19 pandemic

To check whether there are differences *depending on the environment* in which the school is located in terms of the teaching process during the COVID-19 pandemic, the independent samples t-test and the chi-square test of independence/association were applied as follows:

In the case of *the delivery of materials and tasks or learning directions to students* (item 1), the results show that there are significant differences depending on the environment in which the school is located in terms of *providing students with digital materials through digital technologies* [$t(520) = 3.954, p < .01$], there are significant differences depending on the environment in which the school is located in terms of *providing students with printed materials* [$t(520) = 8.390, p < .01$], there are significant differences in according to the environment in which the school is located in terms of the extent to which *parents/guardians take printed materials from the teacher* [$t(520) = 3.997, p < .01$].

For the comparison of *participation in different professional development activities related to the development of digital skills after the emergence of the COVID-19 pandemic* (item 6, multiple choices) according to *the environment in which the school is located*, the results show that there are no significant differences regarding *the environment in which the school is located* in the case of participation in *courses organized and paid for by the school* [$\chi^2(1) = 0.018, p > .05$], there are no significant differences depending on *the environment in which the school is located* in the case of participation in *free courses/tutorials* [$\chi^2(1) = 2.216, p > .05$], there are significant differences depending on *the environment in which the school is located* in the case of participation in *personally paid courses* [$\chi^2(1) = 8.195, p < .01$], there are significant differences according to *the environment in which the school is located* in the case of participation in *exchanges of experience and good practices with colleagues who had digital skills* [$\chi^2(1) = 42.253, p < .01$].

In the case of *bearing costs for professional development activities related to the development of digital skills after the emergence of the COVID-19 pandemic* (item 7), the results show that there are significant differences depending on *the environment in which the school is located* [$\chi^2(1) = 5.523, p < .05$].

To compare *the most demanding/stressful aspects of managing one's own activity* (item 8, multiple choices) depending on *the environment in which the school is located*, the results are presented for each criterion separately. There are no significant differences according to *the environment in which the school is located*

in the case of *planning and organizing online teaching* (item 8.1) [$\chi^2(1) = 1.947, p > .05$]. There are significant differences depending on *the environment where the school is located* in the case of *planning and organizing the online assessment* (item 8.2) [$\chi^2(1) = 24.636, p < .01$], there are significant differences depending on *the environment where the school is located* in the case of *monitoring the assimilation of knowledge/acquisition of skills by students* (item 8.3) [$\chi^2(1) = 7.487, p < .01$].

There are no significant differences according to *the environment in which the school is located* in the case of *monitoring the implementation of protective measures related to students' health* (item 8.4) [$\chi^2(1) = 0.162, p > .05$], there are no significant differences according to *the environment in which the school is located* in the case of *communication with parents* (item 8.5) [$\chi^2(1) = 0.983, p > .05$]. There are no significant differences depending on *the environment in which the school is located* in the case of *others: designing the necessary digital materials* (item 8.6) [$\chi^2(1) = 3.795, p > .05$], there are no significant differences depending on *the environment in which the school is located* in the case of *others: the quality of the Internet* (item 8.7) [$\chi^2(1) = 3.030, p > .05$].

In the case of *the challenges that teachers experienced in organizing the teaching process during the COVID-19 pandemic* (item 9), the results show that there are significant differences depending on the environment in which the school is located in terms of *all the listed challenges that teachers experienced them in organizing the teaching process during the COVID-19 pandemic*: technical problems (lack of infrastructure in the school) [$t(520) = 5.900, p < .01$], lack of digital skills of the teacher [$t(520) = 2.309, p < .05$], lack of students' digital skills [$t(520) = 4.405, p < .01$], lack of devices that teachers can use at home [$t(520) = 2.827, p < .05$] and lack of devices that students can use at home [$t(520) = 4.169, p < .01$].

2.1.2. Comparisons by level of education regarding the teaching process during the COVID-19 pandemic

In the case of *the methods of delivery of materials and tasks or directions for learning to students* (item 1), the results show that there are no significant differences according to *the level of education* in terms of *providing students with digital materials through digital technologies* [$F(3, 521) = 2.324, p > .05$]. There are significant differences according to *the level of education* in terms of *providing students with printed materials* [$F(3, 521) = 7.06, p < .01$]. The results to the Bonferroni test show that *providing students with printed materials* is more developed in the case of teachers who teach at the pre-primary, primary and secondary levels, compared to teachers who teach at the high school level, there are significant differences depending on *the level of education* in regarding the extent to which *parents/guardians take printed materials from the teacher* [$F(3, 521) = 8.75, p < .01$]. The situation in which *parents/guardians take printed materials from the teacher* is more developed in the case of teachers who teach at the pre-primary, primary and secondary levels, compared to teachers who teach at the high school level.

2.1.3. Comparisons by teaching grade regarding the teaching process during the COVID-19 pandemic

In order to check if there are differences depending on *the teaching degree* regarding the teaching process during the COVID-19 pandemic (items 1, 2, 4, 5, 7, 9) we applied the simple variance analysis method (One-Way ANOVA) and the chi-square test.

In the case of *the methods of delivery of materials and tasks or indications for learning to students* (item 1), the results show that there are significant differences according to *the didactic degree* in terms of *providing students with digital materials through digital technologies* [$F(3, 521) = 3.03, p < .05$]. The results of the Bonferroni test show that *providing students with digital materials through digital technologies* is more developed in the case of qualified teachers with the second degree, compared to qualified teachers, there are significant differences depending on *the teaching degree* in terms of *providing students with printed materials* [$F(3, 521) = 9.93, p < .01$]. The results of the Bonferroni test show that *providing students with printed materials* is more developed in the case of novice teachers, compared to qualified teachers, qualified teachers with degree II or degree I, and it is also more developed in qualified teachers, compared to qualified teachers with a degree II, there are differences significant according to *the teaching degree* in terms of the extent to which parents/guardians take printed materials from the teacher [$F(3, 521) = 4.41, p < .01$].

In the case of *participation in professional activities related to the development of digital skills before the onset of the COVID-19 pandemic* (item 4), the results show that there are significant differences depending on *the teaching degree* [$\chi^2(3) = 70.280, p < .01$].

In the case of *participation in professional development activities related to the development of digital skills after the onset of the COVID-19 pandemic* (item 5), the results show that there are significant differences depending on *the teaching degree* [$\chi^2(3) = 49.535, p < .01$].

For the comparison of *participation in different professional development activities related to the development of digital skills after the emergence of the COVID-19 pandemic* (item 6, multiple choices) according to *the teaching degree*, the results show that there are no significant differences according to *the teaching degree* in the case of *participation in courses organized and paid for by the school* [$\chi^2(3) = 2.173, p > .05$]. There are significant differences depending on *the teaching degree* in the case of *participation in free courses/tutorials* [$\chi^2(3) = 13.719, p < .01$], there are significant differences depending on *the teaching degree* in the case of *participation in personally paid courses* [$\chi^2(3) = 18.458, p < .01$], there are significant differences depending on *the teaching degree* in the case of *participation in exchanges of experience and good practices with colleagues who had digital skills* [$\chi^2(3) = 16.199, p < .01$], (Table 3).

Table 3. The results of the Chi-square test for the analysis of participation in free courses/tutorials (item 6.2), depending on the didactic degree

<i>Participation in various professional development activities related to the development of digital skills after the onset of the COVID-19 pandemic (item 6.2): free courses/tutorials</i>	Didactic degree, n (%)			
	novice	qualified	grade II	grade I
Yes	16 (48.5)	46 (53.7)	53 (58.2)	223 (70.8)
No	17 (51.5)	37 (44.6)	38 (41.8)	92 (29.2)
<i>Participation in various professional development activities related to the development of digital skills after the onset of the COVID-19 pandemic (item 6.3): personally, paid courses</i>	Didactic degree, n (%)			
	novice	qualified	grade II	grade I
Yes	2 (6.1)	11 (13.3)	19 (20.9)	96 (30.5)
No	31 (93.9)	72 (86.7)	72 (79.1)	219 (69.5)
<i>Participation in various professional development activities related to the development of digital skills after the emergence of the COVID-19 pandemic (item 6.4): exchange of experience</i>	Didactic degree, n (%)			
	novice	qualified	grade II	grade I
Yes	6 (18.2)	19 (22.9)	43 (47.3)	119 (37.8)
No	27 (81.8)	64 (77.1)	48 (52.7)	196 (62.2)
Total	33 (100)	83 (100)	91 (100)	315 (100)

For the comparison of *the most requested/stressful aspects of managing one's own activity* (item 8, multiple choices) depending on *the teaching degree*, the results show that: there are significant differences depending on *the teaching degree* in the case of *planning and organizing online teaching* (item 8.1) [$\chi^2(3) = 7.832, p < .05$], there are significant differences depending on *the teaching degree* in the case of *planning and organizing the online assessment* (item 8.2) [$\chi^2(3) = 12.389, p < .01$], there are significant differences depending on *the teaching degree* in the case of *monitoring the assimilation of knowledge/acquisition of skills by students* (item 8.3) [$\chi^2(3) = 14.342, p < .01$], there are significant differences depending on *the teaching degree* in the case of *monitoring the implementation of protective measures related to students' health* (item 8.4) [$\chi^2(3) = 5.516, p < .05$], there are significant differences depending on *the teaching degree* in the case of *communication with parents* (item 8.5) [$\chi^2(3) = 8.184, p < .05$]. There are no significant differences depending on *the didactic degree* in the case of *others: designing the necessary digital materials* (item 8.6) [$\chi^2(3) = 3.317, p > .05$].

There are significant differences depending on *the teaching degree* in the case of *others: the quality of the Internet* (item 8.7) [$\chi^2(3) = 21.320, p < .01$], (Table 4).

Table 4. The results of the Chi-square test for analysing the planning and organization of online teaching as a demanding/stressful factor (item 8.1), depending on the teaching degree

<i>Aspects of work management that were most demanding/stressful during the COVID-19 pandemic (item 8.1): planning and organizing online teaching</i>	Didactic degree, n (%)			
	novice	qualified	grade II	grade I
Yes	10 (30.3)	30 (36.1)	43 (47.3)	100 (31.7)
No	23 (69.7)	53 (63.9)	48 (52.7)	215 (68.3)
<i>Aspects of work management that were most demanding/stressful during the COVID-19 pandemic (item 8.2): planning and organizing the online assessment</i>	Didactic degree, n (%)			
	novice	qualified	grade II	grade I
Yes	12 (36.4)	23 (27.7)	40 (44)	153 (48.6)
No	21 (63.6)	60 (72.3)	51 (56)	162 (51.4)
<i>Aspects of activity management that were most demanding/stressful during the COVID-19 pandemic (item 8.3): monitoring students' assimilation of knowledge/acquisition of skills</i>	Didactic degree, n (%)			
	novice	qualified	grade II	grade I
Yes	10 (30.3)	41 (49.4)	55 (60.4)	193 (61.3)
No	23 (69.7)	42 (50.6)	36 (39.6)	122 (38.7)
<i>Aspects of work management that were most demanding/stressful during the COVID-19 pandemic (item 8.4): monitoring the implementation of protective measures related to student health</i>	Didactic degree, n (%)			
	novice	qualified	grade II	grade I
Yes	1 (3)	10 (12)	3 (3.3)	41 (13)
No	32 (97)	73 (88)	88 (96.7)	274 (87)
<i>Aspects of activity management that were most demanding/stressful during the COVID-19 pandemic (item 8.5): communication with parents</i>	Didactic degree, n (%)			
	novice	qualified	grade II	grade I
Yes	4 (12.1)	1 (1.2)	4 (4.4)	28 (8.9)
No	29 (87.9)	82 (98.8)	87 (95.6)	287 (91.1)
<i>Aspects of business management that were most demanding/stressful during</i>	Didactic degree, n (%)			
	novice	qualified	grade II	grade I

the COVID-19 pandemic (item 8.7):

Internet quality

Yes	0 (0)	4 (4.8)	0 (0)	0 (0)
No	33 (100)	79 (95.2)	91 (100)	315 (100)
Total	33 (100)	83 (100)	91 (100)	315 (100)

In the case of the *challenges that teachers experienced in organizing the teaching process during the COVID-19 pandemic* (item 9), the results show that there are no significant differences according to the *teaching degree* in terms of the following *challenges that teachers have experimental in organizing the teaching process during the COVID-19 pandemic: technical problems* (lack of infrastructure in the school) [$F(3,521) = 1.69, p > .05$], lack of digital skills of the teacher [$F(3,521) = 1.62, p > .05$] and students' lack of digital skills [$F(3,521) = 1.67, p > .05$]. However, there are significant differences depending on the *teaching degree* regarding the following *challenges that teachers experience in organizing the teaching process during the COVID-19 pandemic: the lack of devices that teachers can use at home* [$F(3,521) = 3.72, p < .05$] and the lack of devices that students can use at home [$F(3,521) = 2.98, p < .05$].

3. Data interpretation

The interpretation of the collected data revealed the following aspects, depending on the *representative fields, generated by the 3 independent variables* (place of residence, educational level of the school unit, teaching degree), but also by the *dependent variables the consequences (Elements of the teaching process during the COVID-19 pandemic)*.

In the case of the *methods of delivery of materials and tasks or learning indications to students, the provision of digital materials through digital technologies to students* is greater in the urban environment than in the rural environment; *the provision of printed materials to students* is greater in the rural environment than in the urban environment; *the takeover of printed materials by parents/guardians from teachers* is higher in the rural environment than in the urban environment.

In the case of *participation in professional development activities related to the development of digital skills before the onset of the COVID-19 pandemic*, teachers teaching in urban schools participated in *professional development activities related to the development of digital skills before the onset of the COVID-19 pandemic* in a larger measure than teachers teaching in rural schools; *participation in personally paid courses* is higher for teachers teaching in urban schools than for teachers teaching in rural schools.

In the case of *participation in professional development activities related to the development of digital skills after the emergence of the COVID-19 pandemic*, participation in *exchanges of experience and good practices with colleagues who had digital skills* is higher for teachers teaching in urban schools than for teachers who teach in rural schools.

In the case of *bearing the costs of professional development activities related to the development of digital skills after the onset of the COVID-19 pandemic*, teachers teaching in urban schools personally incurred the participation in professional development activities related to the development of digital skills after the onset of the COVID-19 pandemic to a greater extent than teachers teaching in rural schools.

To compare *the most demanding/stressful aspects of managing one's own activity* depending on the environment in which the school is located, there are no significant differences depending on the environment in which the school is located in the case of *planning and organizing online teaching*, while *planning and organizing online assessment* is a more stressful/demanding aspect for teachers teaching in urban schools than for teachers teaching in rural schools and *monitoring the assimilation of knowledge/acquiring skills by students* is a more stressful/demanding aspect for teachers teaching in schools from the urban environment than in the case of teachers who teach in rural schools.

In the case of the *challenges that teachers experienced in organizing the teaching process during the COVID-19 pandemic*, the challenges in *organizing the evaluation process during the COVID-19 pandemic* – technical problems (lack of infrastructure in school), the lack of digital skills of the teacher, students' lack of digital skills, lack of devices that teachers can use at home and lack of devices that students can use at home – were experienced to a greater extent by teachers teaching in rural schools compared to teachers who teach in urban schools.

In the case of the *methods of delivery of materials and tasks or instructions for learning to students, providing students with printed materials* is more developed in the case of teachers who teach at the pre-primary, primary and secondary levels, compared to teachers who teach at the high school level, the situation in which *parents / guardians take printed materials from the teacher* is more developed in the case of teachers who teach at the pre-primary, primary and secondary levels, compared to teachers who teach at the high school level.

In the case of the *methods of delivery of materials and tasks or indications for learning to students*, offering students digital materials through digital technologies is more developed in the case of teachers with a grade II degree, compared to qualified teachers, offering students printed materials is more developed in the case of novice teachers, compared to teachers with a grade II degree or a grade I degree, and it is also more developed among qualified teachers, compared to teachers with a grade II degree, the situation in which *parents/guardians take printed materials from the teacher* is more developed in the case of novice teachers, compared to teachers with a grade II degree.

In the case of *participation in professional development activities related to the development of digital skills before the onset of the COVID-19 pandemic*, teachers with a grade I degree report that they participated in professional development activities related to the development of digital skills **before** the pandemic to a greater extent than those with a grade II degree, qualified teachers or

novice teachers and also those with grade II degree more than those only qualified or novices.

Teachers with a grade I didactic degree report that they participated in *professional development activities related to the development of digital skills after the pandemic* to a greater extent than only qualified teachers or novices.

The comparison of the *participation in different professional development activities related to the development of digital skills after the emergence of the COVID-19 pandemic* according to *the teaching degree* shows that the participation in *free courses/tutorials* is higher in the case of teachers with the a grade I degree, than in the case of novice teachers, the participation in *personally paid courses* is higher in the case of teachers with a grade I degree than in the case of novice or qualified teachers, *participation in exchanges of experience and good practices with colleagues who had digital skills* is higher in the case of teachers with a grade II degree than in the case of novice teachers or qualified teachers.

Planning and organizing online teaching is a more *stressful/demanding* aspect for teachers with a grade II degree than for those with grade I degrees, *planning and organizing online assessment* is a more *stressful/demanding* aspect for teachers having a grade I degree than for qualified teachers, *monitoring the assimilation of knowledge/acquisition of skills by students* is a more *stressful/demanding* aspect in the case of teachers with the grade I degree than in the case of novice teachers, *monitoring the implementation of protective measures related to the health of students* is a more *stressful/demanding* aspect in the case of teachers with the grade I degree than in the case of teachers with grade II, *communication with parents* is a more *stressful/demanding* aspect in the case of teachers with the grade I degree than in the case of teachers that have only qualified, *the quality of the Internet* is a more *stressful/demanding* aspect in the case of qualified teachers than in the case of teachers with a grade I degree.

There are no significant differences according to *the teaching degree* in terms of the following *challenges that teachers experienced in organizing the teaching process during the COVID-19 pandemic*: technical problems (lack of infrastructure in the school), lack of digital skills of the teacher and lack of students' digital skills, there are significant differences by *teaching grade* regarding the following challenges that teachers experienced in *organizing the teaching process during the COVID-19 pandemic*: lack of devices that teachers can use at home and lack of devices that students can use at home. The *lack of devices that can be used at home* is more developed in novice teachers than in qualified teachers, the *lack of devices that students can use at home* is felt more by novice teachers compared to qualified teachers, or those with a grade II or grade I degree.

4. Discussions

The interpretation of the data collected through the conducted research opens up a number of discussions regarding the human resource in Romanian education, including teachers, school managers, students, and their parents.

In this sense, the research presented provides eloquent and sufficient data (judging by the number of respondents and their representativeness as a sample: two residential environments, four levels of education, four categories of professional development) to generate conclusions with a general value.

In regards to the human capital for the Romanian pre-university educational system, the research looked at the category of teaching staff.

The data presented and interpreted fully validate the hypothesis pursued by the research.

The conclusions can be structured starting from the structure proposed by the presented research: the importance and influence of human capital (teaching staff) for the Romanian pre-university educational system from *the perspective of the didactic process (teaching-evaluation) during the COVID-19 pandemic*.

As the methods of delivering materials and tasks or learning cues to students, providing digital materials through digital technologies to students is greater in urban than rural environments, providing printed materials to students is greater in rural than urban environments, *the takeover of printed materials by parents/guardians from teachers* is higher in rural areas than in urban areas.

Providing students with digital materials through digital technologies is more developed in the case of teachers with the second degree, compared to qualified teachers that do not hold a different didactic degree.

Congruently, the situation in which *parents/guardians take printed materials from the teacher* is more developed in the case of teachers who teach at the pre-primary, primary and secondary levels, compared to teachers who teach at the high school level. These are usually novice teachers.

Teachers with a grade I degree report having participated in *professional development activities related to the development of digital skills* before the pandemic to a greater extent than those with a grade II degree, those who are only qualified or novice teachers, and also teachers with a grade II degree more than the qualified teachers or novice teachers.

Teachers teaching in urban schools and in state-funded schools personally endured participation in *professional development activities related to the development of digital skills after the onset of the COVID-19 pandemic* to a greater extent than teachers teaching in schools in rural areas.

Participation in *free courses/tutorials* and in *personally paid courses* is higher in the case of teachers with a grade I didactic degree than in the case of novice or only qualified teachers.

The participation in *exchanges of experience and good practices with colleagues who had digital skills* is higher in the case of teachers with the grade II didactic degree than in the case of novice teachers or qualified teachers.

Planning and organizing online assessment prove to be more *stressful/demanding* for teachers teaching in urban schools than for teachers teaching in rural schools. *Planning and organizing online teaching* are more *stressful/demanding* for teachers with the grade II degree than for teachers with the grade I degree, and *planning and organizing online assessment* is more

stressful/demanding for the teachers with grade I degree than for fully qualified teachers without a degree, more *stressful/demanding* in the case of teachers with the grade I degree than in the case of novice teachers.

Monitoring the assimilation of knowledge/acquisition of skills by students is a more *stressful/demanding* aspect for teachers who teach in urban schools than for teachers who teach in rural schools, more *stressful/demanding* for teachers with a grade I degree than in the case of novice teachers.

Communication with parents is a more *stressful/demanding* aspect in the case of teachers with the grade I degree than in the case of only qualified teachers, and the *quality of the Internet* is a more *stressful/demanding* aspect in the case of qualified teachers than in the case of teachers with the grade I degree.

The challenges in organizing the teaching process during the COVID-19 pandemic – technical problems (lack of infrastructure in the school), lack of digital skills of the teacher, lack of digital skills of the students, lack of devices that teachers can use at home and lack of devices that students can use at home – were experienced to a greater extent by teachers teaching in rural schools compared to teachers teaching in rural schools.

There are significant differences by *teaching degree* regarding the following *challenges that teachers experienced in organizing the teaching process during the COVID-19 pandemic*: lack of devices that teachers can use at home and lack of devices that students can use at home.

The lack of devices that can be used at home is more developed among *first-time teachers* than among *fully qualified teachers*, and *the lack of devices that students can use at home* is felt more by novice teachers compared to qualified, grade I or grade I teachers.

The aspects presented from the perspective of the realization of the educational process during the pandemic period highlight the importance and influence of teaching staff in the field of Romanian pre-university education.

Teaching staff have an important role in the organization of the school and the implementation of the teaching-evaluation process (not only during the COVID-19 pandemic), by providing clear information on the teaching process, they contribute to the efficiency of the education field, they represent authority for students and their parents (informing them about the teaching process and other relevant aspects related to their education during the COVID-19 pandemic), supports communication with different support materials (either digital materials through digital technologies or printed materials). They have digital skills that they develop by attending specialized courses to compensate for students' lack of digital skills or the lack of devices that students can use at home.

These are evidence of the importance and positive influence enjoyed by the teaching staff understood as human capital in the field of education.

REFERENCES

1. Labăr, A., V. (2008). *SPSS for the Educational Sciences: Data Analysis Methodology in Educational Research*. Iasi: Polirom.
2. AmCham. (2021). *PNRR, between opportunities and challenges for education*. AmCham Analysis, Retrieved at: <https://cursdeguvernare.ro/pnrr-intre-opunitati-si-provocari-pentru-educatie-analiza-amcham.html>, [online, 13.05.2023].
3. ***Council of Europe. (2020). *Council conclusions on combating the crisis caused by the COVID-19 pandemic in education and training*. EDUC 248, SOC 393, JEUN, 47. 8317/20. Brussels Retrieved at: <https://data.consilium.europa.eu/doc/document/ST-8610-2020-INIT/ro/pdf.>, [online, 13.05.2023].
4. ***European Commission. (2020). *Digital Education Action Plan (2021-2027)*. Retrieved at: <https://education.ec.europa.eu/focus-topics/digital-education/action-plan>, [online, 12.05.2023].
5. ***European Commission. Europe 2020. (2020). *A European strategy for smart, sustainable and inclusive growth*, Brussels, 3.3.2010, COM(2010) 2020, Retrieved at: <https://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARR-OSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf.>, [online, 10.05.2023].
6. ***European Commission. (2020). *A Europe prepared for the digital age*, Retrieved at: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age_ro, [online, 15.05.2023].
7. ***The General Secretariat of the Government. (GSG). (2020). *The Functional Analysis of Pre-university Teaching Sector*, Retrieved at: <https://sgg.gov.ro/docs/File/UPP/doc/rapoarte-finale-bm/etapa-I/ro-fr-education-output-II-final-report-ro.pdf>, [online, 14.05.2023].