

Research on the Connection between the Administrative Capacity of the National Education System and the Management of Educational Change (Part one)

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ABSTRACT: Changes and challenges in the universal social system are also leading to obvious changes in education systems. In this context, there is a need for efficiency among national education systems, made possible by developing administrative capacity and accelerating educational change. Starting from this premise, the present article reflects on a scientific approach based on the quantitative research method in order to establish the connection between the administrative capacity of the Romanian education system and the management of educational change. Thus, the phenomenon of change plays a fundamental role in the process of evolution of educational management, as educational entities become organizations in terms of structure, management, vision, mission, relationships and climate. Organizational development and good governance are therefore supported by effective management of administrative capacity in line with educational change.

KEYWORDS: administrative capacity, national education system, connection, development, educational change management

1. Introduction

Since the 1960s and 1970s, the phenomenon of educational change has been mentioned at UNESCO conferences. In Europe, the concept of educational change was mentioned by Lapière (1997) in the context of social change. According to social scientists, it contributes to “organizational development, a modern trend of great significance, including in education” (Anghel 2012, 67). At the same time, it is leading to the emergence of a new management trend, that of educational change.

Educational change management is the process of transformation, reorganization and future foresight marked by bold educational reform initiatives. Adopting educational reform with the aim of achieving progress in education takes us towards a quantum leap, a vision in which performance and quality become the benchmarks for affirming the administrative capacity of national education systems. In this context, the governance of the national education service is linked to administrative capacity and educational change management. The process of managing the national education service in relation to the administrative capacity of the national education system, influenced by educational change management, becomes a paradigm for efficiency and progress.

In order to satisfy the public interest in the national education service, the research is punctuated with practical suggestions to define the relationship between the administrative capacity of the education system and the dynamics of educational change. Thus, the administrative phenomenon “constitutes a veritable transmission belt between the impulses of political power and the satisfaction of citizens’ needs” (Slabu 2018, 5). According to these findings, the investigation undertaken is based on the hypothesis that: If there is a connection between the administrative capacity of the national education system and the management of educational change, then we will find that the development of educational infrastructure, good administration and efficient change management contribute to the evolution of the national education system.

The investigative technique applied to the research undertaken is a reasoned decision, because the transfer of data from sender to receiver is carried out as efficiently and quickly as possible, there is flexibility in data collection, as well as a “higher level of concentration on responses, assurance of anonymity” (Walter and Berndt 1971, 40). Considering its position in empirical research as a data collection method, the questionnaire applied in our approach is structured in three sections: the first section is devoted to generalities regarding the typology of respondents; the second section deals with how the administrative capacity linkage takes place of the national education system with the management of educational change; the third section looks at the means to make management more effective change management in order to develop administrative capacity.

In order to demonstrate the causal relationship between administrative capacity and educational change management, as well as to find valid answers to the formulated research hypothesis, three types of indicator questions were used:

- identification-type questions with concise information, used for filtering purposes general issues related to field of work (public-private), age, professional status, position held, professional experience;
- open-ended multiple-choice questions used to eliminate the subjectivity of respondents' choice of answer. These are easy to process by the researcher.
- open questions with a role in free expression and accuracy of language on the part of the respondents, in highlighting rational elements, in developing the capacity of thinking and analysis. Such questions lead to the formulation of precise research directions, full of vision and concreteness.

At the same time, linking the administrative capacity of the national education system to the phenomenon of educational change also involves a number of secondary assumptions, such as:

- the existence of a connection between administrative capacity and change management in the national education system is based on administrative-managerial actions such as planning, organization, predictability and adaptation to change;
- to affirm the interconnection between the administrative capacity of the education system and the management of educational change requires a balance between the vision of public authorities and the national interest in education;
- to improve and increase the administrative capacity of the national education in the context of educational change management, the development of educational infrastructure, good management of the education system, adaptation to change is necessary;
- qualitative transformations in educational infrastructure are achieved through human resources - the agent of educational change;
- the administrative capacity of the national education system is influenced by professional development by strengthening areas of professional, decision-making and pedagogical competence;

Given the breadth of the administrative sciences, it is inevitable to state certain limitations encountered in the investigation, limitations captured from an empirical perspective. Thus, limitations such as: the collection of answers partially justified by plausible arguments, the respondents' lack of adaptation to the time management of the researcher are eloquent. As the research undertaken is part of a complex scientific endeavor, a PhD thesis, we propose below only the first part of the quantitative study, later, in a future article to present the second part. The analysis of the investigation was based on quantitative research supported by a questionnaire to test hypotheses and make measurements that can be benchmarks for refining certain social processes/phenomena/mechanisms. Therefore, the research can be considered “an approach to replace a particular study with an overall study” (Franklin 2008, 240-241). To this sense, a number of 25 questions were developed and applied to a target group of teaching staff working in the public and private education system,

with guidance and control functions, with expertise and professional experience in the field of education. The first part of the quantitative research reflects the analysis of 12 questions and the second part will reflect the analysis of 13 questions, set out in a new article.

Recruiting respondents with a “higher level of education” (Chelcea 2022, 191) ensures “self-determination, without great difficult” (Ibidem) in understanding the research issues. The quantitative research conducted through the questionnaire and the number of respondents qualified in the field of education place the study at a high level of knowledge of the issues in the education system, a valid scientific approach. Without encountering difficulties in understanding the content of the questions, the respondents showed an interest in the topic under investigation. Through the variety of questions asked, it was possible to clearly identify and measure the main contents targeted.

In order to achieve the objectives and validate the hypotheses proposed in the research undertaken, data from a total of 41 respondents were used, even though we aimed for a number of fifty selected respondents. Thus, 80% of respondents took part in the questionnaire, showing a major attention to the field.

IBM SPSS Statistics for Windows, Version 26.0 software was used for statistical processing of the study data. Armonk, NY: IBM Corp. The statistical tools used to process the data were: descriptive statistical analysis, cross-tabulation and χ^2 test (chi-square). Categorical variables were presented as frequency and percentage. Analysis of the association between categorical variables was done using cross-tabulation and χ^2 test (chi-square). If the results of the chi-square test were sufficiently skewed that they could not be taken into account, Fisher’s exact test was used. Therefore, a statistical significance coefficient value of $p < 0.05$ was considered significant.

The questionnaire begins with a brief presentation of the application of the selected method and the topic to be investigated. At the same time, for each section, relevant aspects, specific to the contents dealt with, are listed in order to introduce the respondents involved in the research topic and to ensure a clear perception of their answers. Thus, the research and interpretation of the identification data of the respondents in the first section is related to gender, professional field, professional environment, professional experience, professional status, age, position held. The following presents the results obtained through the collection and analysis of the data contained in the research conducted.

2. Gender

The study sample includes subjects of both sexes, with 22% male representatives and 78% female representatives. Gender imbalance in the teaching profession is observed. This situation is faced by the majority of European education systems. According to a 2019 European regional survey, at “ISCED 1 level, the vast majority of teachers in the EU are women” (Report on the state of pre-university education in Romania 2020 – 2021, p. 59). Romania, together with Greece and Italy, has “the third highest proportion of female teachers in Europe” (Report on the state of pre-university education in Romania 2020 – 2021, p. 59). The trend of increasing female teaching staff continued in 2020-2021. At present, female teaching staff represents “52.1% of the total, continuing the growth trend of recent years” (Report on the state of higher education in Romania 2020 – 2021, p. 38).

Table no. 1. Gender

		Frequency	Percent
Validated date	Male	9	22,0
	Female	32	78,0
	Total	41	100,0

3. Your area of professional activity

Analyzing the distribution of the sample according to the field in which the respondents work, the overwhelming majority (87.8%) work in the public sector, with the remaining 12.2% working in the private sector.

Table no. 2. Your area of professional activity

		Frequency	Percent
Validated date	Public	36	87,8
	Private	5	12,2
	Total	41	100,0

4. Age

Of the respondents surveyed, 51.2% are aged over 50, 26.8% are aged between 41 and 50, while 22% are aged between 31 and 40.

Table no. 3. Age

			Frequency	Percent
Validated date	31-40	years old	9	22,0
	41-50	years old	11	26,8
	over 50	years old	21	51,2
	Total		41	100,0

5. Professional status

More than two thirds of the participants in the study are teachers in pre-university education. A quarter (24.4%) are university teachers, while 4.9% are trainers/education experts. Only 2.4% are active members of an educational NGO. The professional status held confirms the teaching profession and membership of the national education system.

Table no. 4. Professional status

		Frequency	Percent
Validated date	University teaching staff	10	24,4
	Teaching staff in pre-university education	28	68,3
	Trainer/Education Expert	2	4,9
	Active member educational NGO	1	2,4
	Total	41	100,0

6. Position held in education

The following table shows the weights of the positions held in education by respondents to the questionnaire. Thus, 4 persons (9.8%) hold the position of inspector general/deputy/specialist, 3 (7.3%) are department directors, 8 (19.5%) are directors/deputy

directors, 5 (12.2%) are board members and 1 (2.4%) is responsible for national/international educational programs/projects. A total of 3 (7.3%) are responsible in the Education Quality Assurance Commission, another 2 (4.9%) are heads of department and 6 (14.6%) are members of specialist departmental committees and 9 of the study participants do not hold a teaching position. The exercise of the functions held requires from the respondents the use of specific knowledge of public administration, necessary in the administration and management of the national education system.

Table no. 5. Position held in education

		Frequency	Percent
Validated date	Inspector General/Deputy/Specialist	4	9,8
	Department Manager	3	7,3
	Director/Deputy Director	8	19,5
	Member of the Administrative Board	5	12,2
	Responsible for national/international educational programmes/projects	1	2,4
	Head of the Commission for Quality Assurance in Education	3	7,3
	Head of curriculum area	2	4,9
	Member of the curriculum/specialty committee	6	14,6
	It's not the case	9	22,0
	Total	41	100,0

7. What is your professional experience?

Experience in their professional activity is quite diverse: 14.6% have between 5- and 10-years' experience, 22% have between 10- and 20-years' experience, 29.3% have between 20- and 30-years' experience, and no less than 34.1% of respondents have more than 30 years' experience in their professional activity.

The majority being held by respondents with high teaching experience means that the identification of the needs in the education system and the challenges imposed by the socio-economic framework are treated with objectivity and professionalism. This percentage also indicates a greater knowledge of the issues of the educational environment and a greater depth of knowledge of the educational mechanism. At the same time, the professional experience they have gained recommends them in outlining directions that confirm the hypothesis of the research undertaken.

Cross tab no. 6. What is your professional experience?

		Frequency	Percent
Validated date	5-10 years old	6	14,6
	10-20 years old	9	22,0
	20-30 years old	12	29,3
	over 30 years old	14	34,1
	Total	41	100,0

8. To what extent do you see a connection between the administrative capacity of the education system and the management of educational change?

Opinions regarding the existence of a connection between the administrative capacity of the education system and the management of educational change are divided among the study participants. Only a little over half of the respondents (53.7%) believe to a large and very large extent that this connection exists, with the remaining 46.3% believing that this connection exists to a small or very small extent.

Cross tab no. 7. To what extent do you see a connection between the administrative capacity of the education system and the management of educational change?

		Frequency	Percent
Validated date	to a very small extent	3	7,3
	to a small extent	16	39,0
	largely	12	29,3
	to a very large extent	10	24,4
	Total	41	100,0

In the following table, the weights of the responses regarding the existence of the connection between the administrative capacity of the education system and the management of educational change, according to the field in which the respondents work, can be followed. In order to test the relationship between the field in which the respondents work and their responses regarding the existence of a connection between the administrative capacity of the education system and the management of educational change, we used the chi-square test, for the calculation of which we started from the following hypotheses:

Hypothesis H0=No statistically significant association between the two variables

Hypothesis H1=There is a statistically significant association between the two variables

Since $p=0.011$, hypothesis H1 is accepted. The bivariate Chi-square (χ^2) test indicated the presence of a significant association between the two variables ($\chi^2=11.077$; $df=3$, $p=0.011$).

We note that a higher proportion (55.5%) of those working in the public sector believe that there is a strong and very strong relationship between the administrative capacity of the education system and the management of educational change, while the proportion of those working in the private sector who agree to the same extent with the existence of this relationship is much lower (40%).

Cross tab no. 8. Field of your professional activity * To what extent do you think there is a connection between the administrative capacity of the education system and the management of educational change?

			to a very small extent	to a small extent	largely	to a very large extent
Field of your professional activity	Public	Frequency	1	15	12	8
		%	2,8%	41,7%	33,3%	22,2%
	Private	Frequency	2	1	0	2
		%	40,0%	20,0%	0,0%	40,0%

$\chi^2=11,077$; $df=3$; $p=0,011$; Cramer's V=0,520

Although the proportion of older people (both in the 41-50 age group and in the 50+ age group) who strongly and very strongly believe that there is a connection between the administrative capacity of the education system and the management of educational change is much higher than the proportion of 31-40 year olds who hold the same view, the result of the correlation analysis shows that the views on the existence of the connection do not differ significantly ($\chi^2=4.898$; $df=6$; $p=0.557$) according to the age of the questionnaire respondents.

Cross tab no. 9. Age * To what extent do you think there is a connection between the administrative capacity of the education system and the management of educational change?

			to a very small extent	to a small extent	largely	to a very large extent
Age	31-40 years old	Frequency	1	6	1	1
		%	11,1%	66,7%	11,1%	11,1%
	41-50 years old	Frequency	1	3	4	3
		%	9,1%	27,3%	36,4%	27,3%
	over 50 years old	Frequency	1	7	7	6
		%	4,8%	33,3%	33,3%	28,6%

$\chi^2=4,898$; $df=6$; $p=0,557$

The proportion of teachers who strongly and very strongly believe that there is a connection between the administrative capacity of the education system and the management of educational change is significantly higher than the proportion of people of other professional status who hold the same view. Although the difference is statistically significant, this assessment must be made with caution given that the group of persons with a professional status other than that of being teacher includes only 3 persons out of the entire sample studied.

Cross tab no. 10. Professional status * To what extent do you think there is a connection between the administrative capacity of the education system and the management of educational change?

			to a very small extent	to a small extent	largely	to a very large extent
Professio nal status	University teaching staff	Frequency	1	3	3	3
		%	10,0%	30,0%	30,0%	30,0%
	Teaching staff in pre- university education	Frequency	0	12	9	7
		%	0,0%	42,9%	32,1%	25,0%
	Trainer/Education Expert	Frequency	2	0	0	0
		%	100,0%	0,0%	0,0%	0,0%
Active member educational NGO	Frequency	0	1	0	0	
	%	0,0%	100,0%	0,0%	0,0%	

$\chi^2=29,571$; $df=9$; $p=0,001$; Cramer's $V=0,849$

We observe that as work experience increases, the proportion of those who believe, to a great and very great extent, that there is a connection between the administrative capacity of the education system and the management of educational change also increases. However, the

result of the statistical analysis ($\chi^2=13.289$; $df=9$; $p=0.150$) shows us that opinions on the existence of a connection do not differ statistically significantly according to work experience.

Cross tab no. 11. What is your professional experience? * To what extent do you see a connection between the administrative capacity of the education system and the management of educational change?

			to a very small extent	to a small extent	largely	to a very large extent
What is your professional experience?	5-10 years old	Frequency	1	4	0	1
		%	16,7%	66,7%	0,0%	16,7%
	10-20 years old	Frequency	1	5	2	1
		%	11,1%	55,6%	22,2%	11,1%
	20-30 years old	Frequency	0	3	7	2
		%	0,0%	25,0%	58,3%	16,7%
	over 30 years old	Frequency	1	4	3	6
		%	7,1%	28,6%	21,4%	42,9%

$\chi^2=13,289$; $df=9$; $p=0,150$

9. Which of the administrative-managerial actions ensure a good connection between administrative capacity and educational change management?

63.4% of survey participants felt that all actions such as planning, organization, predictability and adaptation to change provide a good connection between administrative capacity and educational change management. Of the remaining respondents, 17.1% mentioned predictability, 14.6% adaptation to change and only 2.4% mentioned planning and organization. We can conclude that predictability is the action that best connects administrative capacity and educational change management in the view of the respondents. The phenomenon of predictability and adaptation advances a foundation of the administrative-managerial mechanism.

Cross tab no. 12. Which of the administrative-managerial actions ensure a good connection between administrative capacity and educational change management?

		Frequency	Percent
Validated date	planning	1	2,4
	organisation	1	2,4
	predictability	7	17,1
	adapting to change	6	14,6
	all variants	26	63,4
	Total	41	100,0

All private practitioners mentioned all the actions presented as having a role in ensuring a good connection between administrative capacity and educational change management, while among public practitioners only 58.3% mentioned all the options as valid.

Cross tab no. 13. Field in which you work * Which of the administrative-managerial actions ensure a good connection between administrative capacity and educational change management?

			planning	organization	predictability	adapting to change	all variants
Field in which you work	Public	Frequency	1	1	7	6	21
		%	2.8%	2.8%	19.4%	16.7%	58.3%
	Private	Frequency	0	0	0	0	5
		%	0.0%	0.0%	0.0%	0.0%	100.0%

$\chi^2=3,285$; $df=4$; $p=0,511$

The following table shows the weights of the mention of administrative-managerial actions that ensure a good connection between administrative capacity and educational change management according to the age of the respondents. Regardless of age category, over 60% of respondents mentioned all 4 administrative-managerial actions as playing a role in ensuring a good connection between administrative capacity and educational change management.

Cross tab no. 14. Age * Which of the administrative-managerial actions ensure a good connection between administrative capacity and educational change management?

			planning	organization	predictability	adapting to change	all variants
Age	31-40 years old	Frequency	1	0	0	2	6
		%	11.1%	0.0%	0.0%	22.2%	66.7%
	41-50 years old	Frequency	0	0	3	1	7
		%	0.0%	0.0%	27.3%	9.1%	63.6%
	over 50 years old	Frequency	0	1	4	3	13
		%	0.0%	4.8%	19.0%	14.3%	61.9%

$\chi^2=7,372$; $df=8$; $p=0,497$

The results of the chi-square test refute the presence of a significant association between professional status and the expression of opinion on administrative-managerial actions that provide a good connection between administrative capacity and educational change management. Regardless of their professional status, a high proportion of respondents mentioned all four of the administrative-managerial actions presented as playing an important role in making a good connection between administrative capacity and educational change management.

Cross tab no. 15. Professional status * Which of the administrative-managerial actions ensure a good connection between administrative capacity and educational change management?

			planning	organization	predictability	adapting to change	all variants
Profes- sional status	University teaching staff	Frequency	0	0	2	1	7
		%	0.0%	0.0%	20.0%	10.0%	70.0%
	Teaching staff in pre-university education	Frequency	1	1	5	5	16
		%	3.6%	3.6%	17.9%	17.9%	57.1%
	Trainer/Education Expert	Frequency	0	0	0	0	2
		%	0.0%	0.0%	0.0%	0.0%	100.0%
Active member educational NGO	Frequency	0	0	0	0	1	
	%	0.0%	0.0%	0.0%	0.0%	100.0%	

$\chi^2=3,161$; $df=12$; $p=0,994$

And in the case of the different categories of work experience, the percentage of those who mentioned all the administrative-managerial actions presented as playing an important role in making a good connection between administrative capacity and educational change management is high, over 55% in each category of work experience. In the categories with less experience (5-10 years and 10-20 years), a higher proportion of those who indicated adaptation to change as an important action in ensuring a good connection between administrative capacity and educational change management, while those with more experience (20-30 years and over 30 years) indicated predictability as an important action in ensuring a good connection between administrative capacity and educational change management.

Cross tab no. 16. What is your professional experience? * Which of the administrative-managerial actions ensure a good connection between administrative capacity and educational change management?

			planning	organization	predictability	adapting to change	all variants
What is your professional experience?	5-10 years old	Frequency	0	0	0	2	4
		%	0.0%	0.0%	0.0%	33.3%	66.7%
	10-20 years old	Frequency	1	0	1	2	5
		%	11.1%	0.0%	11.1%	22.2%	55.6%
	20-30 years old	Frequency	0	1	3	0	8
		%	0.0%	8.3%	25.0%	0.0%	66.7%
over 30 years old	Frequency	0	0	3	2	9	
	%	0.0%	0.0%	21.4%	14.3%	64.3%	

$\chi^2=11,446$; $df=12$; $p=0,491$

10. Which of the elements listed determines appropriate management of this connection?

More than half of the respondents (53.7%) mentioned the balance between the public authorities' vision and the national interest in education as an element that determines the appropriate management of the connection between administrative capacity and educational change management. Similar percentages also mentioned effective management of educational resources (46.3%) and inter-institutional and intra-institutional dialogue (41.5% of respondents). Flexibility in the face of impending challenges was mentioned by 39% of respondents.

Cross tab no. 17. Which of the elements listed determines the appropriate management of this connection?

		Responses		Percentage of respondents
		N	Percent	
Which of the elements listed determines the appropriate management of this connection?	flexibility in impending challenges	16	Percent	39.0%
	balancing the vision of public authorities with the national interest in education	22	29.7%	53.7%
	inter- and intra-institutional dialogue	17	23.0%	41.5%
	efficient management of educational resources	19	25.7%	46.3%
	Total	74	100.0%	180.5%

Regardless of the field in which they work, respondents mentioned in similar percentages the elements that determine the appropriate management of the connection between administrative capacity and educational change management.

Cross tab no. 18. Your area of professional activity * Which of the elements listed determines appropriate management of this connection?

Your area of professional activity	of Public	Frequency	flexibility in impending challenges	balancing the vision of public authorities with the national interest in education	inter- and intra-institutional dialogue	efficient management of educational resources
					14	21
		%	38.9%	58.3%	38.9%	47.2%
	Private	Frequency	2	1	3	2
		%	40.0%	20.0%	60.0%	40.0%

Percentages are reported on the number of respondents.

Even though different weights of the elements that determine the appropriate management of the connection between administrative capacity and educational change management are mentioned according to the age of the study participants, the differences are not statistically significant.

*Cross tab no. 19. Age * Which of the elements listed determines appropriate management of this connection?*

		flexibility in impending challenges	balancing the vision of public authorities with the national interest in education	inter- and intra-institutional dialogue	efficient management of educational resources	
Age	31-40 years old	Frequency	5	3	4	4
		%	55.6%	33.3%	44.4%	44.4%
	41-50 years old	Frequency	3	8	6	8
		%	27.3%	72.7%	54.5%	72.7%
	over 50 years old	Frequency	8	11	7	7
		%	38.1%	52.4%	33.3%	33.3%

Percentages are reported on the number of respondents.

Mention of the elements that determine appropriate management of the connection between administrative capacity and educational change management was made in similar weights, regardless of the professional status of the respondent, as can be seen in the following table.

*Cross tab no. 20. Professional status * Which of the elements listed determines appropriate management of this connection?*

		flexibility in impending challenges	balancing the vision of public authorities with the national interest in education	inter- and intra-institutional dialogue	efficient management of educational resources	
Professional status	University teaching staff	Frequency	3	4	3	3
		%	30.0%	40.0%	30.0%	30.0%
	Teaching staff in pre-university education	Frequency	12	17	12	14
		%	42.9%	60.7%	42.9%	50.0%
	Trainer/Education Expert	Frequency	0	1	1	1
		%	0.0%	50.0%	50.0%	50.0%
Active member educational NGO	Frequency	1	0	1	1	
	%	100.0%	0.0%	100.0%	100.0%	

Percentages are reported on the number of respondents.

The table below shows the percentages in which the participants in the study, grouped according to their work experience, indicated the elements that determine an appropriate management of the connection between administrative capacity and educational change management.

Cross tab no. 21. What is your professional experience? * Which of the elements listed determines the appropriate management of this connection?

			flexibility in impending challenges	balancing the vision of public authorities with the national interest in education	inter- and intra- institutional dialogue	efficient management of educational resources
What is your professional experience?	5-10 years old	Frequency %	3 50.0%	2 33.3%	3 50.0%	3 50.0%
	10-20 years old	Frequency %	2 22.2%	6 66.7%	3 33.3%	4 44.4%
	20-30 years old	Frequency %	6 50.0%	7 58.3%	5 41.7%	6 50.0%
	over 30 years old	Frequency %	5 35.7%	7 50.0%	6 42.9%	6 42.9%

Percentages are reported on the number of respondents.

11. To increase the administrative capacity of the national education system in the context of educational change management we need to:

The elements needed to contribute to increasing the administrative capacity of the national education system in the context of educational change management, in descending order of the number of mentions by respondents, are the following: development of educational infrastructure (mentioned by 58.5% of respondents), good administration of the education system (51.2%), strategic planning (46.3%), digitization of the education service (39%), corps of experts specialized in education administration internally and externally (34.1%), quality education administration environments (26.8%) and strengthening of public-private partnership (24.4%).

Cross tab no. 22. To increase the administrative capacity of the national education system in the context of educational change management we need to:

		Responses		Percentage of respondents
		N	Percent	
To increase the administrative capacity of the national education system in the context of educational change management we need to:	development of educational infrastructure	24	20.9%	58.5%
	good governance of the education system	21	18.3%	51.2%
	strategic planning	19	16.5%	46.3%
	quality educational management environments	11	9.6%	26.8%
	a team of experts specialized in internal and external education administration	14	12.2%	34.1%
	digitization of the education service	16	13.9%	39.0%
	strengthening the public-private partnership	10	8.7%	24.4%
Total		115	100.0%	280.5%

The following table shows the percentages in which the survey participants, grouped according to the field in which they work, indicated the elements that determine the increase in the administrative capacity of the national education system in the context of educational change management.

Cross tab no. 23. Your area of professional activity * To increase the administrative capacity of the national education system in the context of educational change management we need to:

		Public		Private	
		Frequency	%	Frequency	%
To increase the administrative capacity of the national education system in the context of educational change management we need to:	development of educational infrastructure	20	55.6%	4	80.0%
	good governance of the education system	19	52.8%	2	40.0%
	strategic planning	17	47.2%	2	40.0%
	quality educational management environments	11	30.6%	0	0.0%
	a team of experts specialized in internal and external education administration	12	33.3%	2	40.0%
	digitization of the education service	15	41.7%	1	20.0%
	strengthening the public-private partnership	9	25.0%	1	20.0%
	Total	36		5	

Percentages are reported on the number of respondents.

Mentioning the elements that determine the increase of the administrative capacity of the national education system in the context of educational change management was done in similar weights, regardless of the age of the respondents.

Cross tab no. 24. Age * To increase the administrative capacity of the national education system in the context of educational change management we need to:

		31-40 years old		41-50 years old		over 50 years old	
		Frequency	%	Frequency	%	Frequency	%
To increase the administrative capacity of the national education system in the context of educational	development of educational infrastructure	5	55.6%	7	63.6%	12	57.1%
	good governance of the education system	5	55.6%	4	36.4%	12	57.1%
	strategic planning	4	44.4%	8	72.7%	7	33.3%

change management we need to:	quality educational management environments	3	33.3 %	4	36.4%	4	19.0%
	a team of experts specialized in internal and external education administration	4	44.4 %	3	27.3%	7	33.3%
	digitization of the education service	5	55.6 %	5	45.5%	6	28.6%
	strengthening the public-private partnership	4	44.4 %	3	27.3%	3	14.3%
Total		9		11		21	

Percentages are reported on the number of respondents.

Neither in the case of the grouping of respondents by professional status, there are significant differences between their answers on the elements that determine the increase of the administrative capacity of the national education system in the context of educational change management.

Cross tab no. 25. Professional status * To increase the administrative capacity of the national education system in the context of educational change management we need to:

		University teaching staff		Teaching staff in pre-university education		Trainer/ Education Expert		Active member educational NGO	
		Frequency	%	Frequency	%	Frequency	%	Frequency	%
To increase the administrative capacity of the national education system in the context of educational change management we need to:	development of educational infrastructure	7	70.0 %	14	50.0 %	2	100.0 %	1	100.0 %
	good governance of the education system	5	50.0 %	13	46.4 %	2	100.0 %	1	100.0 %
	strategic planning	4	40.0 %	13	46.4 %	1	50.0 %	1	100.0 %
	quality educational management environments	2	20.0 %	9	32.1 %	0	0.0 %	0	0.0 %
	a team of experts specialized in internal and external education administration	4	40.0 %	9	32.1 %	1	50.0 %	0	0.0 %

digitization of the education service	4	40.0 %	11	39.3 %	0	0.0 %	1	100.0 %
strengthening the public-private partnership	4	40.0 %	6	21.4 %	0	0.0 %	0	0.0%
Total	10		28		2		1	

Percentages are reported on the number of respondents.

Below are how the study participants, grouped according to their work experience, identified the elements that determine the increase in the administrative capacity of the national education system in the context of educational change management. The weights of the responses are not statistically significantly different.

Cross tab no. 26. Experience in professional activity* To increase the administrative capacity of the national education system in the context of educational change management we need to:

		5-10 years old		10-20 years old		20-30 years old		over 30 years old	
		Frequen- cy	%	Frequen- cy	%	Frequen- cy	%	Frequen- cy	%
To increase the administrative capacity of the national education system in the context of educational change management we need to:	development of educational infrastructure	4	66.7 %	6	66.7 %	6	50.0 %	8	57.1 %
	good governance of the education system	3	50.0 %	3	33.3 %	6	50.0 %	9	64.3 %
	strategic planning	2	33.3 %	4	44.4 %	7	58.3 %	6	42.9 %
	quality educational management environments	2	33.3 %	2	22.2 %	4	33.3 %	3	21.4 %
	a team of experts specialized in internal and external education administration	2	33.3 %	3	33.3 %	4	33.3 %	5	35.7 %
	digitization of the education service	3	50.0 %	3	33.3 %	6	50.0 %	4	28.6 %
	strengthening the public-private partnership	4	66.7 %	1	11.1 %	2	16.7 %	3	21.4 %
Total	6		9		12		14		

Percentages are reported on the number of respondents.

12. The process of educational change aims at qualitative transformations in the educational infrastructure as evidenced by:

By far, mentioning human resources was the most frequent response (85.4% of respondents) to the question of what qualitative changes in the educational infrastructure are highlighted in the educational process. At a considerable distance were responses such as material resource (48.8%), information resource (46.3%) and experiential resource (36.6%). According to the responses received, it highlights the role and importance of the indispensable agents of educational change: human resources and material resources.

Cross tab no. 27. The process of educational change aims at qualitative transformations in the educational infrastructure as evidenced by:

		Responses		Percent of respondents
		N	Percent	
The process of educational change aims at qualitative transformations in the educational infrastructure as evidenced by:	human resource	35	39.3%	85.4%
	material resource	20	22.5%	48.8%
	information resource	19	21.3%	46.3%
	experiential resource	15	16.9%	36.6%
Total		89	100.0%	217.1%

Regardless of the field in which they work, respondents gave similar answers to the question of what qualitative changes in the educational infrastructure are highlighted in the educational process.

Cross tab no. 28. Your area of professional activity * The process of educational change aims at qualitative transformations in the educational infrastructure as evidenced by:

			human resource	material resource	information resource	experiential resource
Your area of professional activity:	Public	Frequency	30	18	17	14
		%	83.3%	50.0%	47.2%	38.9%
	Private	Frequency	5	2	2	1
		%	100.0%	40.0%	40.0%	20.0%

Percentages are reported on the number of respondents.

Although different weights of answers are given depending on the age of the study participants, the differences are not statistically significant.

Cross tab no. 29. Age * The process of educational change aims at qualitative transformations in the educational infrastructure as evidenced by:

			human resource	material resource	information resource	experiential resource
Age	31-40 years old	Frequency	7	5	5	5
		%	77.8%	55.6%	55.6%	55.6%
	41-50 years old	Frequency	10	7	7	4
		%	90.9%	63.6%	63.6%	36.4%
	over 50 years old	Frequency	18	8	7	6
		%	85.7%	38.1%	33.3%	28.6%

Percentages are reported on the number of respondents.

Even in the case of the grouping of respondents according to professional status, there are no significant differences between their responses with regard to the elements that highlight qualitative changes in the educational infrastructure within the educational process.

Cross tab no. 30. Professional status* The process of educational change aims at qualitative transformations in the educational infrastructure as evidenced by:

		human resource	material resource	information resource	experiential resource	
Professional status	University teaching staff	Frequency	8	3	5	1
		%	80.0%	30.0%	50.0%	10.0%
	Teaching staff in pre-university education	Frequency	24	14	13	13
		%	85.7%	50.0%	46.4%	46.4%
	Trainer/Education Expert	Frequency	2	2	0	0
		%	100.0%	100.0%	0.0%	0.0%
	Active member educational NGO	Frequency	1	1	1	1
		%	100.0%	100.0%	100.0%	100.0%

Percentages are reported on the number of respondents.

Below, it is presented how the participants of the study, grouped according to their work experience, specified the elements that highlight qualitative transformations in the educational infrastructure within the educational process. The weights of the responses are not statistically significantly different.

Cross tab no. 31. Experience of professional activity * The process of educational change aims at qualitative transformations in the educational infrastructure as evidenced by:

		human resource	material resource	information resource	experiential resource	
Experience of professional activity	5-10 years old	Frequency	6	2	4	3
		%	100.0%	33.3%	66.7%	50.0%
	10-20 years old	Frequency	6	5	4	3
		%	66.7%	55.6%	44.4%	33.3%
	20-30 years old	Frequency	10	8	6	5
		%	83.3%	66.7%	50.0%	41.7%
	over 30 years old	Frequency	13	5	5	4
		%	92.9%	35.7%	35.7%	28.6%

Percentages are reported on the number of respondents.

13. What factors influence the administrative capacity of the education system?

Nearly two-thirds of respondents (61%) said that professional development through strengthening professional, decision-making and pedagogical areas of competence is the factor influencing the administrative capacity of the education system. The remaining 39% of respondents chose investment in educational infrastructure as their answer. Thus, the administrative capacity of the national education system is largely influenced by professional development through strengthening areas of professional, decision-making and pedagogical competence, which, by improving and modernizing it, becomes an agent of educational change.

Cross tab no. 32. What factors influence the administrative capacity of the education system?

		Frequency	Percent
Validated date	investments in educational infrastructure	16	39.0
	professional development by strengthening the areas of professional, decision-making and pedagogical competence	25	61.0
	Total	41	100.0

In the case of those working in the public sector, 63.9% of respondents believe that the most important factor influencing the administrative capacity of the education system is professional development through the strengthening of professional, decision-making and pedagogical areas of competence, while among those working in the private sector 60% believe that the most important factor influencing the administrative capacity of the education system is an investment in educational infrastructure.

Cross tab no. 33. Your area of professional activity* What factors influence the administrative capacity of the education system?

			investment in educational infrastructure	professional development by strengthening areas of professional, decision-making and pedagogical competence
Your area of professional activity:	Public	Frequency	13	23
		%	36.1%	63.9%
	Private	Frequency	3	2
		%	60.0%	40.0%

$$\chi^2=1,053; df=1; p=0,305$$

Although the factors influencing the administrative capacity of the education system are mentioned in different weights for each age group, the differences found are not statistically significant.

*Cross tab no. 34. Age * What factors influence the administrative capacity of the education system?*

			investment in educational infrastructure	professional development by strengthening areas of professional, decision-making and pedagogical competence
Age	31-40 years old	Frequency	5	4
		%	55.6%	44.4%
	41-50 years old	Frequency	3	8
		%	27.3%	72.7%
	over 50 years old	Frequency	8	13
		%	38.1%	61.9%

$\chi^2=1,680$; $df=2$; $p=0,432$

In the table below we can see the weights of the answers, regarding the factors influencing the administrative capacity of the education system, according to the professional status of the respondents. No significant association is found between professional status and the specification of certain factors influencing the administrative capacity of the education system ($\chi^2=5,249$; $df=3$; $p=0,154$).

*Cross tab no. 35. Professional status * What factors influence the administrative capacity of the education system?*

			investment in educational infrastructure	professional development by strengthening areas of professional, decision-making and pedagogical competence
Professional status	University teaching staff	Frequency	4	6
		%	40.0%	60.0%
	Teaching staff in pre-university education	Frequency	9	19
		%	32.1%	67.9%
	Trainer/Education Expert	Frequency	2	0
		%	100.0%	0.0%
	Active member educational NGO	Frequency	1	0
		%	100.0%	0.0%

$\chi^2=5,249$; $df=3$; $p=0,154$

Opinion on the factors influencing the administrative capacity of the education system is evenly split (50% - 50%) between those with between 5- and 10-years work experience. Those with 10 to 20 years work experience and those with more than 30 years experience believe in a higher proportion, more than 65%, that the main factor influencing the administrative capacity of the education system is professional development by strengthening the areas of professional, decision-making and pedagogical competence. A majority (66.7%) of people with between 20- and 30-years professional experience believe that the most important factor influencing the administrative capacity of the education system is investment in educational infrastructure.

There is thus a significant association between work experience and the specification of certain factors influencing the administrative capacity of the education system ($\chi^2=7,880$; $df=3$; $p=0,049$; Cramer's $V=0,438$).

*Cross tab no. 36. What is your professional experience? * What factors influence the administrative capacity of the education system?*

			investment in educational infrastructure	professional development by strengthening areas of professional, decision-making and pedagogical competence
What is your professional experience?	5-10 years old	Frequency	3	3
		%	50.0%	50.0%
	10-20 years old	Frequency	3	6
		%	33.3%	66.7%
	20-30 years old	Frequency	8	4
		%	66.7%	33.3%
	over 30 years old	Frequency	2	12
		%	14.3%	85.7%

$\chi^2=7,880$; $df=3$; $p=0,049$; Cramer's $V=0,438$

From the corroboration of the above hypotheses and the statistical data presented, the connection between administrative capacity and educational change management develops on the basis of institutional resources - agents of change in the national education system. The issues highlighted facilitate the shaping of effective management of administrative capacity, which is only possible through investment in the infrastructure of the national education system, as well as through the strengthening of professional, decision-making and pedagogical areas of competence. Under these circumstances, the management of educational change is an attribute of the coordination and rational management of the whole set of resources invested in the education system. Moreover, ensuring a quality public education service to satisfy the general interest is supported, on the one hand, by optimizing the administrative capacity of the national education system and, on the other hand, by its good administration, which are indispensable conditions for adapting to the dynamics of educational change. It confirms the possibility of effective management of the national education system by strengthening the relationship between administrative capacity and educational change management, more precisely the correct management of educational change and the organization/coordination of institutional resources - agents of educational change management: the human resource and the educational infrastructure resource.

From these considerations, an innovative theory emerges, based on the statement: "the material is the means and the necessary condition of intellectual development" (Xenopol 1967, 79). Therefore, the endowment and rational use of institutional resources to ensure the entire education process, as well as the structuring of means and techniques for the qualitative functioning of the entire education system are indispensable components for the development of the administrative capacity of the education system under the influence of the dynamics of educational change.

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In order to fully present the quantitative research undertaken, it is structured in two parts. The first is contained in this article and the second will be published in the next one.

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