CORRELATION BETWEEN THE EMPLOYEE'S LEVEL OF STUDIES AND HUMAN RESOURCE PERFORMANCE IN THE ENTERPRISES FROM RESITA

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Abstract: : Over time, individuals tended to accede to the last level of satisfaction, namely the self-actualization. This was mainly translated into a growing number of people with higher education, in the desire and hope that a higher level of knowledge will help ensuring a stable and secure workplace. This paper aims to analyze on one hand the challenges that this trend has raised for human resources management, and on the other hand the implications upon the general development of Romanian enterprises. The study consists of literature review and expert reports analysis, but tries, through a personal interpretation, to determine the actual connection between the educational level of employees and the performance of a company.

1. THEORETICAL BACKGROUND

Before speaking of performance management, about the determinants of performance or about motivation methods, also considering their analysis, it is necessary to address the performance in a conceptual point of view, both in organizational terms and as a model of behavior or attitude. The literature mentions, on the one hand, the "attitude" as a key factor in achieving performance. The term lies in the existence of the individual intent to assert the main key attributes and professional advantages, hence the desire to achieve positive results and highly valued as through the application of knowledge, skills and personal abilities, and to "capitalize" core competencies. On the other hand, other authors call productivity, creativity and loyalty as the main driving forces behind individual performance.

In a society in constant change, in a dynamic and competitive environment (Manciu, 2013), creativity becomes a prerequisite to ensure continuity in the market, while ensuring loyalty becomes the aspect that assures stability and balance.

The concept of "performance" needs to be defined by many variables. We can refer first to the results, so what we get from certain activities, but at the same time we consider the concepts of effectiveness or efficiency, in terms of the need to perform a whole series of objectives, and on the other hand the idea of assessing the cost / result. Motivation theorists have tried over the years to demonstrate that a better motivation also leads to the generation of performance, this causing job satisfaction.

Performance management is a complex process, which consists not only in the collection of data in accordance with the attainment of a predetermined set of objectives, but can be regarded rather as a "system" through optimization to achieve the required efficiency.

The performance management is emerging through results management, but the system can be viewed and analyzed through several indicators, both qualitative and

quantitative (efficiency, effectiveness, quality, productivity and safety). First developed in the public sector, is a tool used since the 1980s, focusing on "the consequences of activities" (Jeong Yeon Kim, Hangbae Chang, 2013).

Individual performance analysis is a core human resource management activity, "assessing the extent to which the employee fulfills the responsibilities placed in relation to the position held". It is necessary to be performed, being considered as a "high-impact activity and importance," positive or negative results on the performance of human resources in a company showing their effects on the entire mechanism managed. Whether speaking about the processes of recruitment or selection, whether we refer to professional development, planning, motivation and reward system, performance can be identified by analyzing the weaknesses of the human resources department, but also by determining the deficit or excess of staff, by estimating the expected performance levels, the need for professional development, incentive pay and increased productivity.

Human resources can turn into a source of competitive advantage (Worland, Manning, 2005, Miloş, 2012), given that "personnel management policies are integrated with business strategic planning and organizational culture" (1985).

Assessment of human resource performance can be achieved on the one hand at the microeconomic level, and on the other hand at the macroeconomic level, both qualitatively and quantitatively. Input-output relationship represents a quantitative method for assessing the performance.

In the category of inputs (Demyen, Lala, 2014), we can include on the one hand the innovative potential (Bommer W's approach, Johnson J, Rich G, P Podsakoff, MacKenzie S, 1995), and organizational climate (according to Hall R., Andriani P, 2003), organizational culture (A. Gold, Malhotra A, AH Segars, 2001), motivation (A. Albrecht, 1979), education (Abdel Hamid T., 1998), job satisfaction (Coopey J, 1995), loyalty (Gilbert M. Cordey-Hayes M, 1996), standards, practices and organizational routines (W. Cohen, Levinthal D., 1990, Hall R., Andriani P., 2003). Outputs, on the other hand (Najafi) comprise both temporal efficiency (according to Abdel Hamid T. 1993 B. Kline P. Saunders 1993) and quality (Gilbert M., Hayes M. Cordey 1996), innovation (Joseph G., Gary R. 1998, Nonaka I, H Takeuchi, 1995) that use it (Sterman, J., 1994, Nonaka I, Takeuchi H. 1995), as well as creativity (Nonaka I, Takeuchi H. 1995) and customer satisfaction (Senge PM., C. Roberts, Ross RB, Smith BJ, A. Kleiner, 1994).

2. HUMAN CAPITAL AND THE LEVEL OF STUDIES - A NATIONAL LEVEL OVERVIEW

Integration into the European Union has also determined targets to be met over a medium or on the contrary, a long term, one of them being the increasing number of people with higher education. Europe 2020 Strategy provides, among other issues, "a 10% reduction in the rate of early school dropout" and "over 40% increase in the share of graduates in the population aged 30-34 years" (according to Eurostat).

In Romania, the evolution of the population in school, considering a higher educational level is the following:
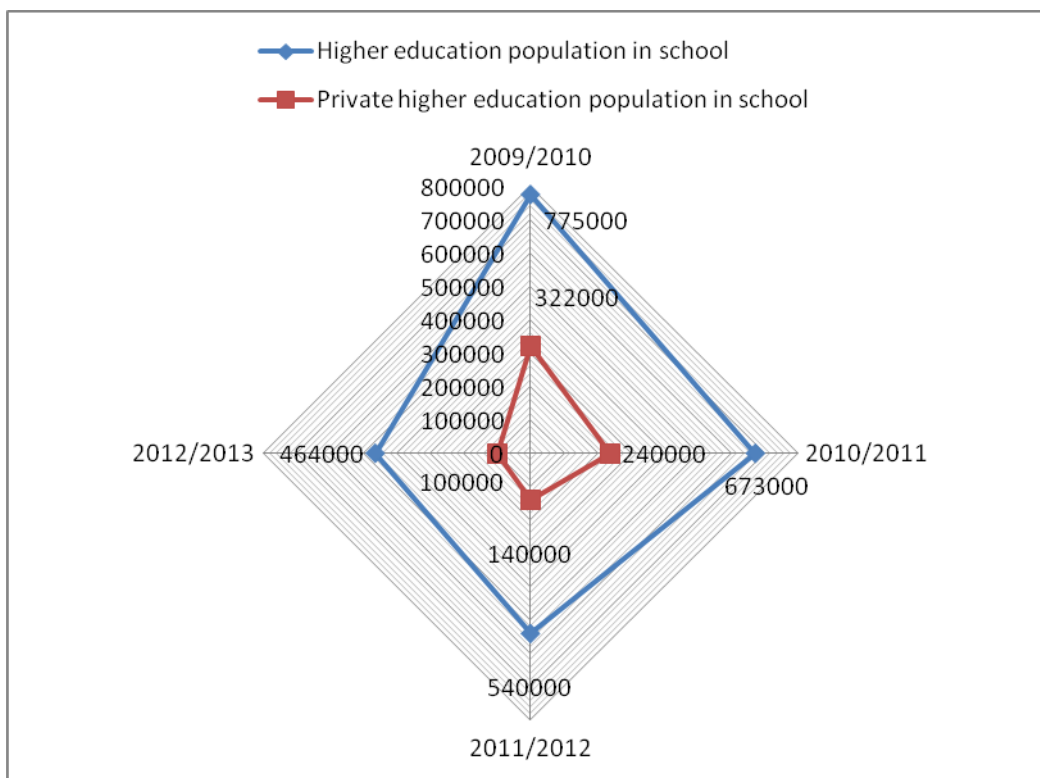
Source: author's own processing, as available data in the study of Romania in figures, statistical abstract 2013
National Institute of Statistics
Fig. Nr. 1 The evolution of the school population - higher education

We note therefore that over the years, the school population with higher education has decreased, which is contrary to the Europe 2020 strategy proposals. From about 775,000 people in the academic year 2009/2010, we are witnessing a decline in the next year to 673.000 students, and 540,000 in 2011/2012, the year with the lowest number of individuals in higher education being 2012/2013 – 464.000 students. Also, we identify the following evolution of the number of students matching 10,000 inhabitants, and the number of graduates in higher education:
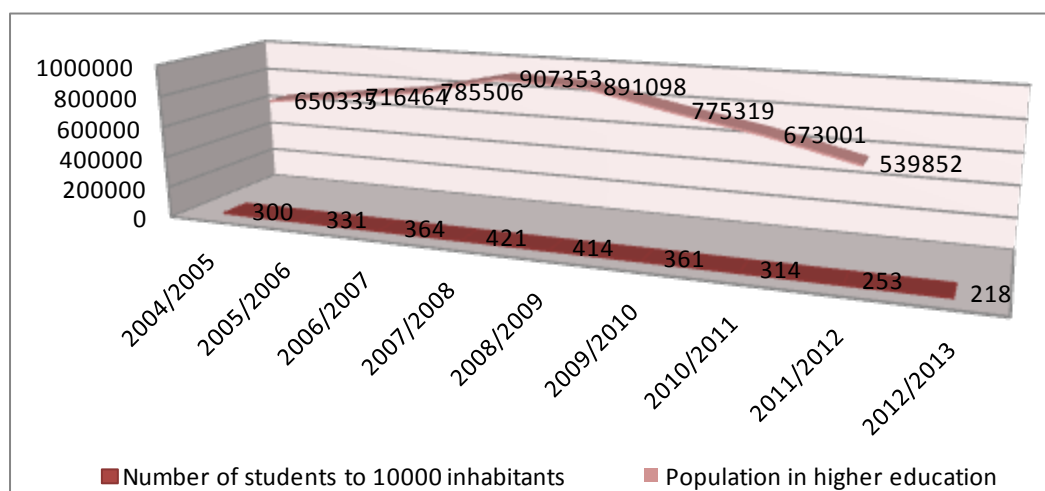
Source: author's own processing, as available data in the study "Romania in figures", statistical abstract 2013,
National Institute of Statistics
**Fig. Nr. 2 - Evolution of the number of students**

We note that the number of graduates who match 10,000 inhabitants is becoming lower in the period considered, going from 421 individuals in 2007/2008 - the peak year, 361 individuals in the academic year 2009/2010, respectively 218 individuals in 2012/2013, due to a reduction in the total population of Romania, from 21,469,959 inhabitants in 2009 to 21,316,420 inhabitants in 2012. We believe that the two issues are interrelated to each other according to the following observations:

Table no. 1 Romanian population and number of students

obs	POPULATION	STUD_10000_INH	OVERALL NUMBER OF STUDENTS
2004	21521142	300	650335
2005	22382354	331	716464
2006	22257016	364	785506
2007	22130503	421	907353
2008	21635460	414	891098
2009	21469959	361	775319
2010	21431298	314	673001
2011	21354395	253	539852
2012	21316420	218	

Source: Romanian Statistical Yearbook, 2008-2013 editions
processing in Eviews 7

The correlation between the total number of students and number of students per 10,000 inhabitants is illustrated in the following graph, being able to identify, through the cloud of points, a close mutual influence of the two variables.
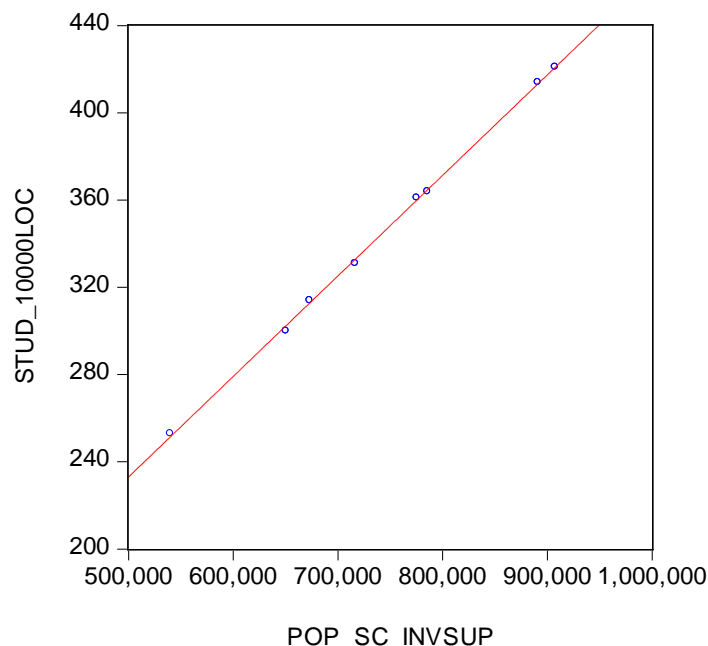
Source: Eviews 7 processing data provided by the Romanian Statistical Yearbook
Fig. 3 – linear regression for the above listed variables

The statistical verification of the single factorial model is based on the statistical tests: Student, Durbin - Watson, Fisher respectively, based on the regression equation between the two variables, POP_SC_INVSUP and STUD_10000LOC. The calculations were made using Eviews 7 software, and it was obtained the following equation:

$$STUD\_10000LOC=C(1)+C(2)*POP\_SC\_INVSUP \ (1)$$
$$STUD\_10000LOC=2.585320+0.000461*POP\_SC\_INVSUP \ (2)$$

Where the dependent variable is the number of students per 10,000 inhabitants and the independent variable is the total number of students enrolled in higher education.

Table no. 2 - Analysis of data using statistical tests

Dependent Variable: STUD_10000LOC				
Method: Least Squares				
Date: 12/01/14 Time: 23:03				
Sample (adjusted): 2004 2011				
Included observations: 8 after adjustments				
STUD_10000LOC=C(1)+C(2)*POP_SC_INVSUP				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	2.585320	3.603091	0.717529	0.5000
C(2)	0.000461	4.80E-06	96.11235	0.0000
R-squared	0.999351	Mean dependent var		344.7500
Adjusted R-squared	0.999243	S.D. dependent var		57.07076
S.E. of regression	1.570516	Akaike info criterion		3.953004
Sum squared resid	14.79913	Schwarz criterion		3.972864
Log likelihood	-13.81202	Hannan-Quinn criter.		3.819054
F-statistic	9237.584	Durbin-Watson stat		0.195910
Prob(F-statistic)	0.000000			

Source: data processing by the author in Eviews 7

According to data obtained in Eviews, the value of the Student test (t-statistic) for C(1) is 2.585320 and for C(2) is 0.000461. The table value of the standard variable (T critical) is determined from the table according to the Student distribution, depending on v=n-1 degrees of freedom and the probability $\alpha/2$. In our case, v = 9-1 = 8 degrees of freedom and probability 0.05 / 2 = 0.025. According to the Student repartition quintiles, the table value tcritic corresponding to a probability of 0.025 error and 8 degrees of freedom is 2,306 <tc (1), 2,306> tc (2).

C (2) = 0.000461> 0, and hence between the two variables is no direct linkage, the model being statistically correct.

According to the available data, the value of Durbin Watson test (Durbin Watson stat) is 0.195910. We determine two tabular values, one lower and one upper, depending on the level of significance of the test α (0,05), the number of observations (9) and the number of k factorial variables (in our case 1, since this a single factor model). Tabulated values will be dL=0.82 and du=1.32. In this case, d = 0.195910 <dL and <du, which means that the random variable autocorrelation hypothesis is accepted, ie the random variable values are dependent on one another, which implies that the sample data records are dependent on each other, so model should be corrected.

According to data obtained in Eviews, Fisher test value (Fstatistic) is Fc=9237.584. Table or critical value chosen from the table distribution of Fisher - Snedecor repartition according to the levels of significance (0.05) and the number of degrees of freedom (8) is Ft = 5.32. By comparing the calculated value Fc to the table value Ft, results that Fc> Ft, and the null hypothesis is rejected with probability $p = 1 – \alpha = 0.95\%$, which means that the model resisted checking, ie variable factor has a significant influence on the variable the result.

R-squared regression coefficient in calculations acquires the value of 0.999351, value> 0, which tends to 1, demonstrating a direct and very strong linkage.

3. CORRELATION BETWEEN THE PERCENTAGE OF PEOPLE WITH HIGHER EDUCATION AND THE PERFORMANCE OF AN ENTERPRISE

Thus, the correlation between the percentage of individuals with higher education in the total employees of SMEs and the criteria previously used offers us the following picture:

Table 3. - The share of individuals with higher education in the overall number of employees

Percentage of individuals with higher education		0%	0 – 25%	25-50%	50-75%	75-100%
	2011	18, 19%	26,52%	21,76%	6,09%	27,44%
	2012	21,97%	19,92%	24,62%	7,21%	26,27%
	2013	25,53%	11,25%	23,47%	7,68%	30,07%
According to the size of the enterprise						
Microenterprises	2011	23,59%	17,44%	20,00%	6,15%	32,82%
	2012	27,20%	14,52%	21,13%	6,16%	30,99%
	2013	31,31%	7,78%	22,02%	6,20%	32,70%
Small enterprises	2011	5,35%	45,60%	27,99%	6,29%	14,78%
	2012	7,05%	33,89%	35,23%	11,07%	12,75%
	2013	10,53%	26,69%	30,45%	13,16%	19,17%
Medium sized enterprises	2011	5,10%	57,14%	25,51%	5,10%	7,14%
	2012	0,00%	41,94%	40,32%	8,06%	9,68%
	2013	9,09%	28,79%	28,79%	19,70%	13,64%
According to the field of activity						
Industry	2011	15,09%	48,11%	19,81%	7,08%	9,91%
	2012	18,27%	34,01%	25,89%	5,08%	16,75%
	2013	22,85%	15,84%	32,81%	8,14%	20,36%
Constructions	2011	16,05%	44,44%	18,52%	7,41%	13,58%
	2012	19,35%	24,73%	21,51%	10,75%	23,66%
	2013	28,75%	22,50%	25,00%	8,75%	15,00%
Commerce	2011	27,61%	21,35%	25,06%	5,34%	20,65%
	2012	27,08%	15,99%	26,26%	6,69%	23,98%
	2013	34,49%	10,55%	22,05%	7,87%	25,04%
Transportation	2011	18,70%	29,27%	32,52%	4,07%	15,45%
	2012	27,27%	20,00%	24,55%	6,36%	21,82%
	2013	55,22%	13,43%	17,91%	0,00%	13,43%
Tourism	2011	22,58%	29,03%	20,43%	3,23%	24,73%
	2012	22,50%	24,17%	27,50%	8,33%	17,50%
	2013	19,74%	7,89%	17,11%	15,79%	39,47%
Services	2011	8,18%	8,92%	14,87%	8,18%	59,85%
	2012	13,43%	13,43%	20,14%	8,13%	44,88%
	2013	20,77%	6,92%	18,94%	6,74%	46,63%

The average share of people with higher education differs depending on the criteria mentioned above:

- Thus, we note a reduction in the rate for new business, as well as of those with experience in the market.

- The only category of enterprises which encouraged the increase in the percentage of employees with higher education was that of medium-sized enterprises. In all other cases we are facing a decline.

- The year 2012 marked an increase in the share of people with higher education, taking account of the SMEs operating in but was immediately followed by a tendency to reduce these shares in all industries.

Table no. 4 - The average share of employees with higher education

| | According to the age of the enterprise | | | | According to the size of the enterprise | | | According to the field of activity | | | | | | |
	0-5 years	5-10 years	10-15 years	over 15 years	Microenterprises	Small enterprises	Medium sized enterprises	Industry	Constructions	Commerce	Transportation	Tourism	Services	Western Region
2011	49,67 %	44,29 %	37,85 %	33,78 %	47,38 %	34,64 %	25,07 %	27,75 %	32,05 %	36,57 %	34,97 %	37,57 %	71,61 %	57,86 %
2012	48,73 %	43,84 %	39,18 %	37,85 %	47,38 %	34,64 %	25,07 %	34,06 %	42,04 %	41,55 %	39,23 %	35,27 %	59,88 %	47,96 %
2013	31,93 %	27,89 %	29,49 %	25,24 %	28,62 %	26,85 %	30,25 %	20,59 %	21,23 %	25,16 %	19,14 %	21,33 %	42,90 %	9,11 %

We further analyzed through Eviews 7, the influence of the share of employees with higher education upon company profits. For this, we selected 10 enterprises in Resita, which fit in the category of SMEs. All are companies with a presence and age less than 10 years on the market, the composition of the number of employees being both people with secondary education and higher education graduates. We will further analyze the impact that the share of employees with higher education, in the state of input, manifests on the economic performance of the firm, materialized in the form of profit. Selecting data was randomly sampled firms in areas ranging from various activities both micro and small or medium enterprises.

The variables considered were the share of employees with higher education in total employment enterprise and also the variable profit, the latter being a dependent variable.

Table nr 5

obs	PSS	P
1	0.250000	275038.0
2	0.030000	34948.00
3	0.070000	100029.0
4	0.000000	62860.00
5	0.020000	11474.00
6	0.020000	72003.00
7	0.010000	6712.000
8	0.010000	-12810.00

9	0.040000	66738.00
10	0.080000	30410.00

The relationship between the two variables can be illustrated by the following regression line:
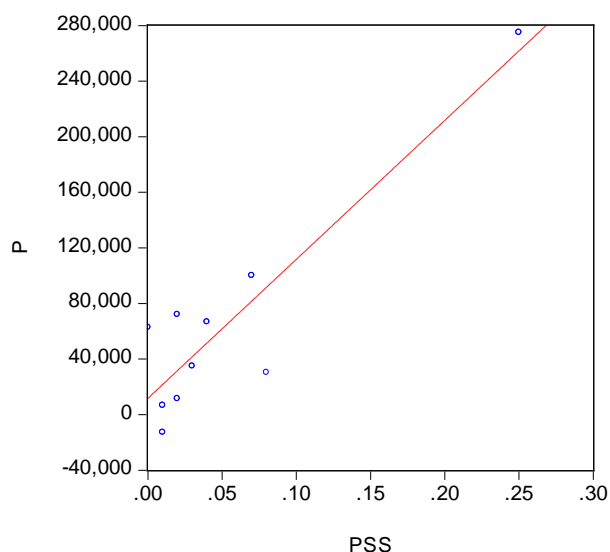
Source: Eviews 7 processing data provided by the Romanian Statistical Yearbook
Fig. 4 – linear regression for the above listed variables

Table nr. 6

Dependent Variable: P				
Method: Least Squares				
Date: 11/29/14 Time: 23:31				
Sample: 1 10				
Included observations: 10				
P=C(1)+C(2)*PSS				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	11741.77	14432.54	0.813562	0.4394
C(2)	999970.4	164154.5	6.091640	0.0003
R-squared	0.822648	Mean dependent var		64740.20
Adjusted R-squared	0.800479	S.D. dependent var		81524.00
S.E. of regression	36414.94	Akaike info criterion		24.02020
Sum squared resid	1.06E+10	Schwarz criterion		24.08072
Log likelihood	-118.1010	Hannan-Quinn criter.		23.95382
F-statistic	37.10808	Durbin-Watson stat		2.129398
Prob(F-statistic)	0.000292			

According to data obtained in Eviews, the value of the Student test (t-statistic) to C (1) is 0.813562 and C(2) is 6.091640. The tabular value of the standard variable (T critical) is determined from the table of the Student distribution, according to v=n-1 degrees of freedom and the probability $\alpha/2$. In our case, v=10-1=9 degrees of freedom and probability 0.05/2=0.025. According to the Student repartition quintiles, the tabular tcritic value corresponding to the error 0.025 of degrees and 9 degrees of freedom is 2,262> tc (1), 2262 <tc (2). The two parameters, c (1) and c (2) are significantly different from 0, the model is therefore statistically correct, rejecting the null hypothesis.

C (2) = 6.091640> 0, and hence between the two variables is no direct linkage, the model is statistically correct, and c(2) is not only greater than 1, but also having a much higher value, it can be said that the relationship between the two variables is strong.

According to available data, the value of Durbin Watson test (Durbin Watson stat) is 0.195910. We determine two tabular values, one lower and one upper, depending on the level of significance of the test α (0,05), the number of observations (9) and the number of k factorial variables (in our case 1, since this a single factor regression model). Values are tabulated dL=0.82 and du=1,32. In this case, d=0.195910 <dL and <du, which means that the random variable autocorrelation hypothesis is accepted, ie the random variable values are dependent on one another, which implies that the sample data records are dependent on each other model should be corrected.

According to data obtained in Eviews, Fisher test value (Fstatistic) is Fc=9237.584. Table or critical value chosen from the table distribution Fisher - Snedecor according to the levels of significance (0.05) and the number of degrees of freedom (8) is Ft = 5.32. By comparing the calculated value Fc to the tabular value Ft results that Fc> Ft, and the null hypothesis is rejected with probability $p = 1 - \alpha = 0.95\%$,, which means that the model resisted checking, ie variable factor has a significant influence on the variable that results.

R-squared regression coefficient in calculations acquires the value of 0.999351, value> 0, which tends to 1, demonstrating a direct and very strong linkage.

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