

The relationship between Investments to Increase Human Capital in the HEI and the Return on Intellectual and Integrative Capital

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ABSTRACT:

This article has as goal to compare the investments of Human Capital by the Humans Resources sector of institutions of a private administrative nature with the variation of Intellectual and Integrative Capital and to determine the relationship between the involvement of human resources with HEI and their title. From the reach of these goals, the problem will be answered: which is the relationship between the investments to increase the Human Capital in the HEI and the return in Intellectual and Integrative Capital? The hypothesis that guides this article are: there is no increase of Intellectual and Integrative Capital after teaching qualification. The data were analyzed qualitatively with the construction of inferences, deductions and inductions in dialogs with theoretical aspects. The results showed that there is no proportional relationship between the increases of human resources and the Intellectuals and Integrative Capitals. In some cases, it actually decreased.

Key words: Human Resources; Human Capital; Intellectual Capital; Integrative Capital.

1. INTRODUCTION

Being able to measure and qualify the intangible assets becomes fundamental to differentiate yourself in the market because we are at a time when most of the human production and wealth of nations are in the field of knowledge and ideas. Nowadays, the wealth of nations is given by the power of producing ideas, knowledge and technologies that are transformed into the most varied services.

The physical material world begins give way to the immaterial, soon the intangible will be part of the companies' world agenda, whether of visible products and/or services because, even the ones of products manage to sell more when the subjective assembled to it reaches more the population.

In the institutions of higher education, the immaterial is more evident because the work's object is, for its nature, intangible: production of knowledge. It demands a constant upgrade of human resources hired by the HEI in order to ensure the quality of classes, operation object. In fact, the quality standards determined by the regulatory organs shows a higher value to the HEI's that have HR with bigger Human Capital (titration).

This scenery makes the HEI's of private administrative nature invest financial resources to help its HR to obtain a bigger titration with the increase of Human Capital and they expect the proportional increase of Intellectual and Integrative Capital, because these are more related to the HEI than to the HR. However,

it is known that the Human Capital (titration) serves to value the HEI but are centered in the HR, because when it leaves the HEI, it needs to replace this Human Capital.

Therefore, is problematized with the questioning: which is the relationship between the investments in increasing the Human Capital in the HEI and the return in Intellectual and Integrative Capital? In the context of this question, the goals of the article are two: compare the investments of Human Capital by the sector of Human Resources of the institutions of private administrative nature with the variation of Intellectual and Integrative Capital and to determine the relationship between the evolvement of human resources with the HEI and its titration. Already regarding the hypotheses:

H₀: There is no increase of Intellectual and Integrative Capital after teacher's titration.

H₁: There is increase of Intellectual and Integrative Capital after teacher's titration.

2. METHODOLOGY

In the universe of private institutions of higher education, a HEI was chosen for presenting some characteristics such as good results in the ministry of education, being a known brand in the Bahia's North East and Sergipe's South Center (Brazil) and many of their teachers seek alternation of level, in their titration of specialist to master and from master to doctor.

Regarding the teachers, the population was composed by teachers that consisted in the data base of HEI from 2012 to 2019.1 totaling 120 teachers with selection for sample the teachers who were hired as specialists or masters and changed their titration staying in the HEI in the meantime. Therefore, the sample was composed by 16 teachers which 11 changed their titration of specialist to master and 5 from master to doctor.

Once chosen the HEI, it was researched the data in its academic portal available online where there was all the information needed to carry out data collection identifying the teachers described in the institutional portal with selection of teachers that changed their titration from specialist to master and from master to doctor keeping bond with the HEI.

Then, it was analyzed the *lattes* curricula to categorization of productions in Human, Intellectual and Integrative Capital. Were compared present data in the curricula of the teachers before and after titration, assigning quantitative and qualitative value to the capital produced by them with statistical analysis repeated measures t-test.

It was also analyzed the data referring the teacher's career plan, course matrices, academic schedule and official documents from the IRS. All of these data were analyzed for the verification of the ratio of increased human capital in proportion to financial increase and return in terms of Intellectual and Integrative Capital.

The data were analyzed in qualitative way with inference, deductions construction and inductions in dialogs with the theory which results are construction of concept and hypothesis formulation from the data analysis. (SILVA *et al*, 2010).

RESULTS

The results are presented in three tables. In the first table there are variations of three kinds of

Human, Intellectual and Integrative capital with correspondence to each kind of capital with t-student test application which showed that there were no differences between the slopes of the lines before and after the titration. In the second, it was presented the percentual increases from specialists to masters and from masters to doctor and, in the third one, the values paid by hour in class in the HEI reference.

Table 1: Production Variations of HC, IC, *INC* After Titration

Teacher	Titration	HC Variation	IC Variation	INC Variation
Tchr. 1	Master	-0,02	0,00	-10,0
Tchr. 2	Doctor	0,01	0,07	-0,17
Tchr. 3	Master	-0,90	-0,34	12,0
Tchr. 4	Doctor	0,05	-3,50	13,0
Tchr. 5	Master	-0,80	-0,05	-3,00
Tchr. 6	Master	0,10	0,03	-2,50
Tchr. 7	Master	0,50	0,10	0,18
Tchr. 8	Doctor	-2,75	-3,75	-0,20
Tchr. 9	Doctor	-0,80	-0,30	-14,0
Tchr. 10	Master	-7,00	-2,00	-1,60
Tchr. 11	Master	0,50	-0,20	-11,0
Tchr. 12	Master	-0,30	-0,30	-1,30
Tchr. 13	Doctor	2,50	-0,35	0,50
Tchr. 14	Master	0,70	-1,75	-1,00
Tchr. 15	Master	0,90	-0,95	-2,50
Tchr. 16	Master	0,02	0,00	0,50

Source: (BEZERRA; DE-BORTOLI, 2021).

According to data in table 1, which compares the variations after titration of the three Human, Intellectual and Integrative capitals, only two teachers presented positive variation in the three capitals corresponding to 12,5%. Teachers number 7 and 16, both masters, in other words, there is no doctor with positive variation in the three capitals.

It should also be noted that both the maximum variation was 0.5 in Human Capital for teacher 7 and Integrative Capital for teacher 16. The remaining variations were below 0.2, with 16 remaining stagnant in Intellectual Capital.

In other words, it can also be said that fourteen teachers have at least negative capital, which means 87.5% in percentages and nine have at least positive capital, which is 64.3%.

Five of these teachers presented negative variation in the three capitals corresponding to 31,25%. Teachers number 5, 8, 9, 10 and 12. Of these, number 9 and 10 are doctors, that is, 40% of teachers with negative values for the three capitals are doctors.

It should also be noticed that only 5 teachers have a variation lower than 1. The others have a superior predominance to 0,5. In everyone there is at least a value superior to 1. Here, comes to attention

the high values of variation like 9 that had -14 for the Integrative Capital and, 10 that had -7 for the Human Capital.

When comparing the three capitals, the only one that showed a positive predominance was the Human Capital with the teachers 2, 4, 6, 7, 11, 13, 14, 15 and 17, only three; and the ones numbered 1 and 16 were stagnant. The Capital with the lower positive value was the Integrative with only the teachers 3, 4, 7, 13 and 16, that is, five teachers.

Regarding the investment in the Human Capital by HR, in HEI's career plan there is a vertical progression in terms of titration, that is, there are percentage increases in salary when going from specialist to master and from master to doctor, as shown in table 2.

Table 2: Increase of salary values to be paid by titration – Career plan

ESPECIALIST/ MASTER	19,60%
MASTER/ DOCTOR	16,24%

Source: (BEZERRA; DE-BORTOLI, 2021).

In the career plan there is also the value of the hour per classes for the specialist, master and doctor, as shown in table 3, highlighting the exclusivity contract being 20 hours for teaching and 20 hours for other academic activities, via project presented by the teachers, regardless of whether the project is presented or not, the value remains the same and, if submitted and executed, it will be increased in proportion to the hours of the project.

Table 3: Total values of hour/class to be paid in the HEI reference

	4h weekly	Monthly values
Specialist Value	R\$ 923,09	R\$ 120.001,70
Master Value	R\$ 1.104,03	R\$ 143.523,90
Doctor Value	R\$ 1.283,20	R\$ 166.816,00

Source: (BEZERRA; DE-BORTOLI, 2021).

In terms of quantitative values, considering the two tables, without taking into account the other academic activities for the 20 hours that the HEI pays and charges, and considering 130 hours of a course, when going from specialist to master there is an increase of R\$ 23 522.22 and a master's degree and 23 292.1.

When considering the sample, 11 professors went from specialist to master and 5 from master to doctor, it is clear that there is a considerable increase in the payroll, due to the incentive for titration by human resources.

DISCUSSION

In order to facilitate the reading process of the elaboration and presentation of the discussion's results, the data and / or information scheme will be followed in an enumerated and didactic way, followed

by the elaborated inference, with further discussion.

- Data 1- Human Capital with 57% of positive variation.
- Inference 1- It's the capital with more direct relationship with the HEI.

According to Moura, Ferreira, Sousa e Pontes (2005), the management of Human Capital in the HEI's has invested in the professionalization of its teachers, creating policies to encourage titrations and training, participation in academic events such as congresses, forums, seminars, training and motivations to expand their knowledge and use them in innovation, however, they need to build criteria to realize these investments in added value for the brand, as well as financial.

For Spinelli (2015), the human capital is one of the fundamental IAs for organizations to have a competitive advantage with survival in the market and, therefore, must have professional and personal skills consistent with its new dynamics, which requires investment in HC with training congruent to the company's objectives in order to efficiently and quickly produce what they need.

According to Quimara e Sepúlveda (2018), a non-coherent evaluation of IA has negative consequences in the economic and social field because it reduces the possibility of expanding other capitals such as HC and IC, which requires management to carefully analyze the choice of the best methodology to value IA.

To Engelman *et al.* (2015), the IC has a direct influence on how the organization expands the HC for the processes of acquisition, assimilation and use of the values arising from the IC whose transformation of knowledge must exert a uniform influence on the various capitals of the company, with emphasis on innovation.

As the HEI, in study, helps in the teacher's qualification (investment of Human Capital in their Human Resources – HR) there is an expectation that, also, increases the Intellectual and Integrative Capitals of this HR. If it does not happen, it would be simpler to hire the titled already correspondent to the criteria of MEC's evaluation and avoid the questions of adaptation and flexibilization of schedule, adjustments on work's demands and own investment.

- Data 2- Intellectual Capital with 62,5% of negative variation.
- Inference 2- Produced to join master's and doctoral programs.

Studies and researches made by Nicollini, Torres, Macedo and Câmara (2014), with 2952 administration courses in Brazil, there was a very weak relationship between the number of master professors and doctors in the course and the performance of graduating students at ENADE with less than 40% showing an improvement in the academic quality of the student associated with the expansion of the master staff and doctors.

According Trindade, Barbosa and Bouzada (2017), there is no practical and empirical research evidence to support the idea that the professor with a master's degree and a researcher doctor have a higher teaching performance, even so, there is a very firm belief in this relationship, believing that it is

always positive.

. Pan, Cotton and Murray (2014), on the other hand, suggest that each HEI should study better the relationship between academic qualifications and performance in their HEI in order to perceive points of convergence and divergence, the nexuses and discontinuities with teaching in order that management acts better in this relation when considering institutional objectives.

And for Meyerson e Massy (1994), the intensity relation of the titleholder research is presented in two distinct moments. In the first moment this relation presents a positive curve and, from a determined moment, tends to decrease showing the negative curve.

To. Budovich and Nadtochiv (2019), the teacher's IC evaluation must be fulfilled in five steps. In the first moment, called zero step, it is presented the goals, ways and principles, such as the people who will do the evaluation. The first step corresponds to self-evaluation considering what is foreseen in the work plan. In the second, the evaluation is carried out by the pair teachers of the HEI and others, administrations and specialists. In the third, occurs the evaluation carried out by the students. And, finally, at the fourth are discussed the results with the teachers for the feedback and consideration.

To Machado (2008), one of the ways of making teachers act after titration, for further the classes, would be a better measure of Intellectual Capital with the construction of specific indicators according to the characteristics of each organization to serve as an evaluation process, since it is an intangible asset and, therefore, loaded with subjectivity, but in need of metrics to add value to the HEI.

According to Stefano and Son (2018), manage IC is find strategies to organize process and technologies built initially in the cognition for further transformations of these information in knowledge of an IC in the culture of organization, which requires the comprehension of concepts, evaluations, measure of these actives and elaboration of tools for this management capable of an evaluation with capture, identification, systematization and application of information in the production of knowledge that will be used to boost the organizational strategies with wide performance.

Budovich and Nadtochiv (2019), recommends that for the HEI being able to evaluate the IC of the teacher with more quality it must be done by parts of each component the indicators of predictable goals by HR; time of service; participation and involvement in the academic activities; work regime; and costs invested in the teacher.

Thereby, it is important that the HEI invest in the academic process of the teachers with incentives for titration, for scientific production and professional qualification, but it also needs to follow and observe the arising results of this process in order to generate competitive advantage in their HEI from these data according with the institutional goals because, if it does not happen, it can only be an indicator that it has a HR with knowledge.

- Data 3- Integrative Capital with 68,75% of negative variation.
- Inference 3- Produced to join master's and doctoral programs.

In research made by Reis and Horvath (2014), in a period of four years with 76 teachers from the accounting sciences course of the paranaense HEI, the results showed that the teachers are partially fulfilling their assigned function, according to legislation, it must be further than teaching and extension,

including the research because most of the masters and doctors in the four years had few publications and 33,45% of the sample didn't write any article.

For Trindade, Barbosa and Bouzada (2017), the aspects of the teacher intellectual IC indicates a direct and positive relation with the improvement and quality of HEI's services, in special, in the student performance are training and professional development; experience in the exercise of the magisterium; remuneration; work regime; experience in orientation, including, in relation to student retention; and, finally, pedagogical practice.

Bak and Kim (2015), when there is a politic to incentive for titration and academic production without results monitoring of this investment, it can have an opposite result because the teachers may concentrate their energy in the IC and prejudice the teaching quality.

Nicollini, Torres, Macedo and Câmara (2014), there are two aspects that must be considered when wanting to studying courses quality reflecting on the performance of graduates associated with the number of masters and doctors in the teaching staff. The first is that the master's and doctoral degrees do not focus on the development of teaching skills such as didactics, learning mediation and how one can learn to seek the best forms of teaching and, secondly, HEI must have masters and doctors to attend the assessment of the parameters for MEC's evaluation, which makes them to no longer have teachers with excellent teaching practices and extensive experience in teaching because they are specialists, which can make the courses to have losses in teaching practice.

Trindade, Barbosa and Bouzada (2017), the relationship between the degree of the professor and the quality of teaching is so conflicting that, in addition to the lack of strong evidence in favor of the positive, there are findings that shows the opposite with the defense that these teachers discredit teaching in favor of research.

Therefore, it is important for the HEI to verify how the process of pedagogical training of the total number of teachers is going, because the fact of presenting the titration does not necessarily mean an improvement in the teaching/learning process, since the titration focused more on research than on teaching and , in addition, it should be considered what was agreed with the teacher in relation to what was expected of him after the titration in terms of improvements in the teaching/research/extension triad so that the titration is not just the act of fulfilling the evaluations of the MEC.

FINAL CONSIDERATIONS

The data analysis showed that there was an investment of HEI for the expansion of human resources, but it was not followed by an increase of Intellectual and Integrative Capital after titration. On the contrary, there was a decrease in both, showing an inverse proportionality of the relation: HEI's investments to expand the Human Capital X Intellectual and Integrative Capital, that is, the first increased and the other two decreased, confirming the hypothesis that there was no increase in Intellectual and Integrative Capital after the teacher's titration.

Thereby, is necessary a good management of intangible assets resulting from the titration increase, such as clear politics and quality indicators of teachers after titration; and the HEI needs to act to realize the conversion of this investment into positive values, which makes it seek alternatives for joint

measurement of tangible and intangible assets, if this does not occur, it may be making wrong decisions in relation to the intended objectives.

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