The importance of Intellectual Capital's management to obtain the expected results in terms of investment in Human Capital

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ABSTRACT

This article has as goal to discuss the importance of Intellectual Capital's management to obtain positive results from the investments of Human Capital from the sector of Human Resources of institutions of a private administrative nature and check what generates more positive results in Intellectual Capital: the investment in human resources for titration or new ways of management of Intellectual Capital. From the reach of these goals, the problem will be answered: How to obtain more results in terms of Intellectual Capital from the Human Capital? The hypothesis that guides this article are: the management of Intellectual Capital generates results so positive or more than the investments in human resources to obtaining the titration; Intellectual Capital's management does not generate such positive results as the investments in human resources for titration. Inferences, deductions and inductions were built from a qualitative analysis of data in congruence to the theorized aspects and presented data. The results presented the need of having a management of Intellectual Capital for obtaining satisfactory results from human resources and that only the investment for obtaining titration does not provide the enlargement of Intellectual Capital.

Key words: Intellectual Capital; Management; Human Resources; Titration.

INTRODUCTION

To Barbosa (2010), many are the conceptions of the word service. One of them refers to a economic immaterial good because it is not presented in material shape. Are products of work, without necessarily acquire a visible shape, and services that please the human need, but does not necessarily has a material contribution. A good example of immaterial service is education and their teaching developments, research and extension in higher education institutes.

Many times, in only one production, the material and immaterial coexists, for that it is important the legal conception of specification understood as the new that adds to the one already existing for

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understanding immateriality of immaterial good. Synthetically, is the transformation of the essential into accessory.

Traditionally, it always had a separation between the corporeal and incorporeal, that is, the tangible (the thing) apprehended by the visible senses and the intangible, also, apprehended by sense, however, not visible. Therefore, that is how Zenão and Lucrécio thought. Already for Cícero, there are things that exists and others that is conceive. For the firsts, tangibles; the second, intangibles that are immaterial goods and incorporeal products of human production, since the scientific, going through artistic, reaching the industrial inventions (Barbosa, 2010).

This makes show the need of knowing how to work with Intellectual Capital in an organized and systematic way knowing how to acquire it, organize it and use it in favor of the company's development, regardless of the explicit or tacit for that all can have access and work with consciences of the knowledge they have. To Stefano and Filho (2018), this process is called Knowledge Management - KM and is related in a direct way with IC for having a competitive differential in the Intangible Assets – IA processes, once that for the first, if used correctly, is base piece for sustainability of the company in terms of competitiveness and, for the second, competes exactly for the function of making an IC's efficient management.

According to Oliveira and Golding (2006), the Knowledge Management must act in a way to creat, locate, share, measure and use knowledge in order to expand the HRs and, for that, must have metrics in all steps, since the creation to process sharing with evaluation, including, the own metrics with quantitative and qualitative approaches.

This context becomes even more crucial in the Higher Education Institutions of private administrative nature so that it can follow the quality indexes of Ministry of Education needs to expand the Intellectual Capital in terms of teacher titration. To be able to know if in fact this increase occurred, it becomes necessary making an Intellectual Capital management in order to be able to make decisions from these results. Thus, it is problematized with the questioning: How to obtain more results in terms of Intellectual Capital from Human Capital?

In the context of this question, two are the goals of this article: discuss the importance of Intellectual Capital management to obtaining positive results from the investments of Human Capital by the sector of Human Resources of the institutions of private administrative nature; to check what generates more positive results in Intellectual Capital: the investment on human resources for titration or new ways of Intellectual Capital management. Already regarding the hypothesis are:

H_0: The management of Intellectual Capital does not generates positive results such as the investments on human resources for titration.

H_1: The management of Intellectual Capital does generates such positive results or more than the investments on human resources for obtaining titration.

METHODOLOGY

The discussion and analysis of data was made in qualitative approach in which is build theories from deduction, induction with researcher's interpretation whose inferences for hypothesis formulation and

construction of concepts are the data analysis (Silva *et al*, 2019). In this perspective, the data and information from research are matrices for inferences formulation to discussion and interpretation.

For this, it was chosen an HEI with good results on the Ministry of Education that is located in Bahia's Northeast and Sergipe's South Center (Brazil). After this HEI definition, it was carried out a search of data in its academic portal available online where there were all needed information to make the data collect identifying the teachers described on the institutional portal with the selection of teachers that changed titration from specialist to master and from master to doctor keeping bond with HEI. Then, it was analyzed the *lattes* curriculums to categorization of Intellectual's production.

It was worked with a sample of 16 teachers of a 120 total from a teacher's board at one HEI. The teachers were at HEI in the period of 2012 and 2019. The used criteria for the sample was the change of titration.

It was applied the statistic analysis t test of repeated measure in the collected data from the teacher's *lattes*. It was carried out a data comparison present in the curriculums of the teachers before and after titration, assigning quantitative and qualitative value to the capital produced by them.

RESULTS

The results are presented in a table. It contains the variations of Intellectual Capital with t-student test application that showed there were no differences between the slopes of the lines before and after the titration.

Table I: Comparison of Intellectual Capital's Production Before and After Titration

Teacher	Titration	Index before titration	Index after titration	Variation
Tchr. 1	Master	0,00	0,00	0,00
Tchr. 2	Doctor	-0,07	0,00	0,07
Tchr. 3	Master	0,17	-0,17	-0,34
Tchr. 4	Doctor	0,50	-3,00	-3,50
Tchr. 5	Master	0,05	0,00	-0,05
Tchr. 6	Master	-0,40	-0,05	0,03
Tchr. 7	Master	-0,10	0,00	0,10
Tchr. 8	Doctor	0,75	-3,00	-3,75
Tchr. 9	Doctor	0,30	0,00	-0,30
Tchr. 10	Master	0,50	-1,50	-2,00
Tchr. 11	Master	-0,20	0,00	0,20
Tchr. 12	Master	1,00	-2,00	-3,00
Tchr. 13	Doctor	-0,05	-0,30	-0,35
Tchr. 14	Master	1,50	-0,25	-1,75
Tchr. 15	Master	-0,45	-0,50	-0,95
Tchr. 16	Master	0,00	0.00	0,00

Source: author's elaboration produced in October 2019.

According to table 1 data, that compares the variations after titration of Intellectual Capital, of the 16 teachers, 10 had a negative variation corresponding to 62,5%; 2 presented stagnant results corresponding to 12,5%. Thus, at adding the two previews percentages we will have a total of 75% of teachers that did not evolved the intellectual capital after titration. Therefore, only 4 teachers presented positive variation, corresponding to 25%.

It is also emphasized that the positive variation of the 4, none presented expressive changes, because all were bellow 0,2. Already the negative variations were very expressive, because of 10 teachers, only 5 teachers had a negative variation smaller than 1.

From the 4 teachers positive variation, 1 was doctor and 3 masters. So, from 10 negatives, 4 doctors and 6 masters, once that 2 masters stayed. This shows that the negative variation does no depends on titration. The teachers that presented positive variation were 2, 6, 7, and 11. Already the ones with negative variation were 3, 4, 5, 8, 9, 10, 12, 13, 14 and 15. Did not presented positive variation the teachers 1 and 16. Consequently, the Intellectual Capital presented, according data, a significant drop after titration.

DISCUSSION

According Pinheiro, Mendes and Oliveira (2014), in the Brazilian universities, the is a detachment between produced knowledge (IA) and their protection for intellectual property and the proof of that is the discrepancy that exists between the great number of produced articles, with the novelty criteria on periodicals, and the reduced patents whose cause is the fact that our country has only recently presented a model for the management of intangibles, which still reduces the search for protection.

To Lima and Ferreira (2008), one of the organizations that should know the concept and comprehension of IC even more, such as their management, are the HEIs including with mensuration capacity, retention and increase of intangibles assets, however, in Brazil, is still very incipient and restrict the punctual experiences for measuring the IC with programs evaluations and/or efforts for such, which shows the broad space that there is to disseminate in education the use of IC management for decision making with competitive advantage for this kind of organization.

To Silva and Ferreira (2012), is important the managers present a systemic vision of business to KM in order that they can realize their own strategies in na organized and structural way which analysis of traced objectives can, from the analysis, trace specific goals for objective with the purpose of developing new goals and initiatives for reaching them, which requires global vision with better use of time in their respective functions.

According Silva, Damian and Segundo (2016), the results of a knowledge management followed with bases in indicators are improvements in products and services of the organizations, collaborative environment and learning with the people's work income, soon, earnings that must be searched with actions and incentive policies to the correct use of tools for management follow-up and the organization of knowledge with technique systematization that organizes the knowledge production and embodied to processes that compound the organization in three perspective transformation, treatment and knowledge availability.

Example of great experience in terms of intangible assets appreciation regarding the Intellectual Property IP with defined management policies and still in total tune with an agency of innovation its the PUC/RJ, which gives great competence for the IA management. The causes of this management are precisely in the presence of a specific body in IP and formal definition of policies to manage IP assets, including IA. These two elements of the management organ and policy are fundamental for universities to be able to advance in the protection reference of what is produced in their spaces. There is, therefore, a need for IP and innovation issues to be disseminated in universities in order to start to present more receptive environments for the construction of knowledge accompanied by protection capable of helping the country to develop in terms of technology and economics. All of this proves that, for the process of technology transfer and diffusion of knowledge, regardless of whether they are public or private, universities are fundamental (Araújo; Costa, 2019).

Thus, the intellectual capital is fundamental, because, the higher education institutes operates in an environment more and more globalized and in constant evolution, marked by a growing competition to attract and keep the best talents and for the emergency of new needs that has obligation to respond (European Commission, 2016).

According Fukunga *et al.* (2015), the global data of the knowledge worker show a worldwide mastery of the concept in the North American and German institutions with 9.1% of the most productive HEIs and a strong tendency for the growth of the theme worldwide and, in addition, they vehemently reveal a dispersion with decentralization of research centers in the HEIs, which does not allow us to affirm a concentration of studies on the theme in these institutions, due to the observation of the indicated geographical dispersion.

According to Leitner and Curaj (2014), for a better measurement of Intellectual Capital, it is necessary to determine specific indicators according to the characteristics of each organization because it is an intangible asset and, thereby, loaded with subjectivity and, therefore, also, one could not compare activities within the same sector or between countries because there is no metric generalization and, on the other hand, the analogy between different sectors of activity is difficult, but possible to be carried out in the same area.

For Silva et al. (2019), in any case, today, the ideal is that the decision making of managers is also influenced by the elements that make up intellectual capital in order to start to have greater competitive advantages.

To Martins and Ferreira (2015), this shows how much the IC is important for the growth of the organizations as well as is basilar theme at the moment, what makes HEIs a key part for the production and dissemination of this knowledge in relation to the degree of importance of KM to generate competitive advantages. Therefore, the education and training of people for the production and realization of new knowledge is the basis for making the knowledge society grow, so, the HEIs are the foundation for this new space (European Commission, 2016).

So, it depends, according Silva, Damian and Segundo (2016), how important is to KM manage the best practices in order to build collaborative environments and promoting the use of IA, which requires from KM present a process with steps to assists and help in the construction of an environment capable of,

besides measuring, transform and make it available the knowledge produced, be able to build an organizational memory.

For Pinheiro, Mendes and Oliveira (2014), university spaces are fundamental for all this to happen, as long as there is an efficient management in them to protect what is produced in both tangible and intangible aspects, that is, a very strategic management of human competences related to teaching, research and extension. This will give the country the conditions to increase its business potential and to maintain its economic growth.

Comparative studies about the IA's divulgation, with highlight for the IC, between Brazil and Australia were made by Rezende, Lott and Quinatanilha (2019) and showed that in Brazil the HEIs tends to follow to the letter the indicators of the National Higher Education Assessment System (SINAES) prioritizing the IC yet without much understanding of its impacts and Australia is a pioneer in having specific tools to measure its IA teachers and place their HEIs at the peak of the knowledge economy and the main differences are in the way they treat HC and INC, because Austrians seek to publicize the activities developed by students as differentials, and in Brazil, the focus of dissemination is on resources and management methods.

According Stefano and Filho (2018), one of the factors that collaborates for organizations to lose strength for competition in the market is the absence of an organizational culture in relation to knowledge produced, devaluation of the IC, when in fact, sharing knowledge transforms organizational spaces with added value to the IA with regard to employees, shareholders, customers, suppliers, in short, the whole of society.

According to Budovich and Nadtochiv (2019), the evaluation of the teacher's IC must be carried out in five stages. In the first moment, called stage zero, the objectives, forms and principles are presented, as well as the people who will carry out the evaluation. The first stage corresponds to self-assessment considering what is foreseen in the work plan. In the second, the evaluation is made by peers from HEI's teachers and others, administration and specialists. In the third, the assessment made by the students occurs. Finally, in the fourth, the results are discussed with the teachers for feedback and considerations.

For Brito and Oliveira (2016), our HEIs must closely monitor the production of the IC as well as their management including the ability to measure, retain and increase intangible assets, however, in Brazil, it is still very incipient and restricted to specific experiences to measure the IC with program evaluations and / or efforts to do so, which shows us the ample space for the use of IC management to be used in decision making with competitive advantage for this type of organization.

According to Budovich and Nadtochiv (2019), the HEIs have presented difficulties in monitoring and evaluating the IC of both the administrative staff and the teachers because, in most cases, what we have are processes of joint evaluation of all collaborators and not individual IC of each professional be it a teacher or not.

An example of this aspect was the study carried out in a Higher Education institution in Cajazeiras / PB regarding the importance attributed to critical intangible assets for the evaluation of Intellectual Capital and it was found that there is a recognition of this importance in all the dimensions proposed the evaluation, however, was noticed in the study, the absence of IA management in an effective and efficient

way, which directly interferes in the composition of the IC of the HEI. It was also found that the coordinators do not have a strategic vision for the management of IA (SILVA, et al. 2018).

This shows how IC is important for the growth of the organizations as well as is the basilar theme at the moment, that make HEIs key to production and diffusion of this knowledge regarding the importance degree of the KM to generate competitive advantages (Martins; Ferreira, 2015). So, the education and formation of people to production and effectuation of new knowledge is foundation to making society of knowledge grow, so, the HEIs are the foundation for this new space.

Therefore, how important is a policy and management of Intellectual Capital in HEIs that invest in teaching titles so that any financial increase can be reversed, initially, in improvements in the services provided by HEI teaching, extension and research, and later, based on effective management and systematic monitoring of intangible assets improved with the titling, adds positive values to the HEI with return on investment, in addition to compliance with the titling of regulatory bodies.

To Castilho (2004), the HEI presenting teaching staff with titration does not necessarily mean that the HEI has the reversion of this knowledge to improve services in favor of the objectives and mission of the organization, what it says is that it presents a large amount of knowledge at its disposal to be managed and monitored.

For Silveira and Garrido (2017), there is a gap between IA and accounting management, because no model was found in the literature that showed the IA and resources relationship, which would be important for facilitating the people who work with the statements. traditional accounting systems better visualize the importance of managing intangibles for competitive advantages because they see financial values in the Return on Assets Evaluation category and, in addition, there is an insufficiency to work the entire process being restricted to only identifying intangibles, without giving a sequence of local and global evaluation to work the whole cycle with the conversion, starting from an effective management of them in results.

According to Quirama and Sepúlveda (2018), regardless of the methodology chosen to measure the IA, it is essential that the accounting and financial regulations go together in order to obtain fair value and manage to make a coherent transfer to the various capitals of the organization. For this, according to Le *et al.* (2019), management needs to create an innovation policy with a firm practice of monitoring and evaluating the policy created so that the company can be aware of the knowledge produced and how to use it to expand its various capitals.

According to Budovich and Nadtochiv (2019), the IC of an HEI has a competitive advantage for the organization; it allows for an increase in profits, provided that the correct investments are made and evaluated for the return of results; in order to develop it, HEI costs are increased due to the need to work with the group and the people; it is cumulative and difficult to measure.

For Silva *et al.* (2014), the KM of the knowledge of the HEIs has a large and complex task which is to try to measure the intangible capital considered the biggest generator of resources for the HEIs and the product of entry and exit of the institution which is the IC, which, at the same time is subjective, but they need to find ways to measure it and not ignore it because it has many implications for the development of the HEI, which can count on the help of accounting to inform the development of the IC associated with the other assets in order to contribute with knowledge management for universities in the theoretical

construction of their IC based on the mission and strategy of the HEI. According to Vaz *et al.* (2015), the diffusion and dimension of the definitions of Intellectual Capital, in spite of being positive for the area, can also, for a great part of the organizations that do not know how to measure, quantify and even identify the IA, confuse and overlap ideas for the practice.

For Ciprian *et al.* (2012), Intellectual Capital is an intangible asset with multiple concepts and of fundamental importance for the company's growth, but, unfortunately, despite the recognition of its importance, there is still no real accounting of it in the current financial statements. Consequently, according to Silveira et al. (2015), institutions need to seek dynamic and systematic models to manage their intangibles because several models have already been developed, but still with problems because they are linear and do not work in an integrated way.

According to Silveira *et al.* (2015), Intellectual Capital has as its exit and entry point, that is, its generation and, at the same time, its destiny is the human being with a prominent role to create competitive advantage, especially in knowledge companies and technology and, in order for this to actually happen, people need to be managed and understood in a logic of reflection, exchange of experiences, constant interaction between everyone in the company so that there are skills gains, which requires competence management by function and appreciation of human processes because it leaves them in a situation of better well-being, which of course, makes them have better results and, consequently, motivates them to always innovate with an eye on the market, thereby, more competitive advantages.

When the HEI has a policy of titration incentive, with increase of intellectual capital, followed by the financial addition to the personnel sheet, it must be managed to see if there will be a conversion of aggregated values for the company, based on the investment made, with this addition of positive intangible, intellectual capital, to the human capital of the company.

For Budovich and Nadtochiv (2019), the management of HEIs should use the results of the IC assessment for decision making because these data enable the identification of areas that deserves attention and adjustment, showing whether in teaching, research, extension, dissemination of results, and, mainly, it will help to improve the teaching / learning process in relation to programs, technologies and training support systems, in short, it improves the management of HEI as a whole.

For Lima and Ferreira (2018), in Brazil, in spite of the recognition of the need for IC measurement of teachers in order to increase IA in HEIs, there are still few evaluation experiences, which opens up a lot of space in the educational field for the management of the IA can be used in the decision-making process in order to present competitive advantages in the market.

The management's decision-making power must be based on the meeting point of the accounting approach that would demonstrate various information of the IA in their cycles and changes that they produce in the company's patrimonial and economic order and the financial sector that makes the analysis of the external data. This scenario shows how, although the importance and value of intangible assets have been confirmed lately, as there are still many difficulties for working with IA, even though they are the main survival tools for companies in the competitive environment (Cavalcanti *et al.,* 2017).

To Barbosa and Gomes (2002), this requires an efficient and effective management of IA arising from investments in human resources knowing that it can only operate in these capitals if it has policies

and actions that can actually measure and monitor the results of such resources and, if it does not have these mechanisms, the first decision would be to rethink incentives and investments.

Researches carried out by Silva, Gomes, Shimoda and Rios (2013), with 2530 students, for evaluating specialist teachers, masters and doctors, the specialists were the best in the evaluation presenting the best didactic profile and best mediators, which may justifies such result

According to Romeiro *et al*. (2016), in the evaluations of the administration courses in Brazil in 2012 by the MEC, only 5 states had a bad evaluation, having as a predominant factor the low number of masters and doctors and, in the other 22, they would not change the results of their evaluation if they improved the parametric relationship between masters and doctors regarding the specialists.

FINAL CONSIDERATIONS

The data analysis showed that there was not an enlargement of human resources, in terms of Intellectual Capital after titration, but a significant independent drop happened from specialist to master to doctor. This confirms that simple investment in human resources, in terms of titration, does not guarantee the Intellectual Capital enlargement.

From this finding, it was confirmed that the hypothesis that the Intellectual Capital management does generates such positive results or even more than the investment in human resources for obtaining titration. Consequently, the HEIs need to find ways of teachers work valuation further titration, because, it alone is not a good indicator that intellectual capital expanded considerably with significant feedbacks to the HEI.

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