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THE LINKAGE BETWEEN INDIVIDUAL, GROUP AND ORGANIZATIONAL LEARNING AT A HOSPITAL

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ABSTRACT

This article aims to analyze the relation between individual, collective and organizational levels of learning in a hospital. In order to meet this objective, according to previous studies, a quantitative survey was carried out, from the application of questionnaires, with the hospital nurses. The data were analyzed followed by the technic of structural equation modeling. The results demonstrate that learning in groups is related to the learning that occurs at the individual and organizational levels. However, individual learning was not significantly associated with organizational learning. Furthermore, it was found that the collective learning substantially influences the organizational learning, compared to individual learning. The results are consistent to those found in other similar studies.

Keywords: Organizational Learning; Group Learning; Individual Learning.

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INTRODUCTION

Studied and discussed on a regular basis for more than fifty years, learning in organizations is still subject to divergence - perhaps deliberate - and requires depth in research. Not only in the academy, but also in the business scenario, the growing importance of the acquisition, maintenance and transference of learning and knowledge the strategic tools and the instruments of employability for workers is observed.

Due to the increasing recognition of the importance of knowledge as a strategic resource for modern organizations, it is well known that many areas of Administration and other sciences are focused on researching and feasible their creation, transformation, learning, use and management (BENNET; TOMBLIN, 2006). In this context, the management of organizational learning appears to be the prime factor in these issues, being able to enhance these processes that permeate the spheres of individuals, groups and organizations themselves.

The term "organizational learning" (OL) is observed in a multiplicity of conceptualizations, classifications and applications. In this article, we focus on the organizational level, through a normative perspective (SHIPTON, 2006), as it seeks to evidence organizational learning in its different dimensions. It is assumed, however, like other authors (FYOL; LYLES, 1985; KIM, 1998; CROSSAN, LANE; WHITE, 1999; ABBAD; BORGES-ANDRADE, 2004 CROSSAN; MAURER; WHITE, 2011), the learning organizational level comprises the processes of individual learning (IL) and group learning (GL). These dimensions are interconnected and should be considered when examining the learning phenomenon.

However, the difficulties and problems inherent to research in the field, among which Neder and Bido (2017), stand out: 1) the increasing number of scientific texts; 2) the difficulty of analyzing this diversified production through the methodologies commonly used in the area; and 3) the difficulty of understanding the complex relationships present in this cluster of scientific texts. In addition, Correia-Lima , Loiola and Leopoldino (2017) show that despite the diversity of scales created - especially in the international arena, few methods and measures are available for evaluation, verification and measurement of the OL phenomenon.

Despite the acknowledgment of the existence of units or levels of analysis for the phenomenon of learning in organizations, the relationship between the three dimensions of learning is a subject that is yet to be clarified (BIDO et al., 2011). The optimization of learning processes and transfers at these levels is necessary (ABBAD, BORGES-ANDRADE, 2004), however, and to that end, the deepening of the measurement and analysis of the organizational learning process is an essential factor in academic research (FYOL LYLES, 1985). Even so, measurements of the OL phenomenon face many challenges (CORREIA- LIMA, LOIOLA, LEOPOLDINO, 2017).

Having in mind these considerations, as well as the low volume of publications related to the subject in the health area, particularly in Brazil, where the research is incipient (BORBA, 2009), this article aims to analyze the articulation between the individual, group and organization of learning in a hospital. In a highly complex hospital environment where people with different backgrounds and functions work, and where work situations suffer wide variations, learning processes and the development of adequate knowledge have a direct impact on the well-being of the patient, besides being one of the primordial factors for the improvement of the quality of the service.

Through this research, we hope to highlight the level of correlation between individual, group and organizational learning, and contribute with the academy in the advancement of the theme, as it directs empirical efforts towards the articulation of these three phenomena, so little

studied. In this sense, in this article comparative analyzes will be carried out with similar previous studies. Thereby, it aims to facilitate the observation by the researched institution on aspects that may or may not need reinforcements related to learning and instill managers in general to seek more information to the management of learning in their specific contexts.

ORGANIZATIONAL, GROUP AND INDIVIDUAL LEARNING AND THEIR ARTICULATIONS

According to the idea that it is not possible to accurately classify one or another learning study (SHIPTON, 2006), and that separate cognitive and behavioral approaches are more restrictive than complementary (NICOLINI; MEZNAR, 1995), it is assumed that organizations are agents of the process and, whether that is a conscious or unconscious choice, all organizations learn. Learning is a critical requirement for the sustained existence of organizations (KIM, 1998), a continuous process that allows them to influence and be influenced by their environment. It is not something that the organization chooses, but something inherent to its systemic configuration (NICOLINI; MEZNAR, 1995).

Organizational learning is understood as the process of improving actions from appropriate knowledge and understanding (FYOL; LYLES, 1985; HUBER, 1991). It corresponds to the expansion of the organization's capacity to make effective decisions and actions (KIM, 1998) and to the main means by which the organization can be renewed strategically (CROSSAN et al*.,* 1999). Organizational learning, as well as on an individual level, does not necessarily imply observable changes. As a process developed in an organization in a unique way (COOK; YANOW, 1996), discussions involving OL require contextualization (CHAN; SCOTTT-LADD, 2004).

Although it can be affirmed that the phenomenon of learning in organizations does not have an artificial separation by levels (GHERARDI AND NICOLINI, 2001), the organizational level learning process comprises the individual and group learning in an interconnected way, both within and between organizations (CROSSAN; MAURER; WHITE, 2011).

The importance of individual learning for organizational learning is both obvious and subtle: obvious, because all organizations are made up of individuals, and subtle, because organizations can learn independently of any particular individual, but not independently of all individuals (KIM, 1998). Thus, an organization can learn only from its members, but it is not dependent on any particular member. Individuals, in turn, can learn without organization and acquired / developed learning does not necessarily have organizational implications (ARGYRIS, SCHON, 1978; KIM, 1998).

According to Zanelli (2004), IL is the product of the interaction experience of the individual with his environment, which allows him to apprehend something as capacity or disposition with the potential to be manifested in the future, evidenced or revealed through some change in his behavior. However, such changes do not necessarily determine changes in behavior (FRIEDLANDER, 1983), nor are changes exclusively observable (COOK; YANOW, 1996).

OL is not simply the sum of the individual learning of each of its members. Organizations, unlike people, develop and maintain learning systems that not only directly influence their members, but are passed on to others through organizational histories and norms (FYOL; LYLES, 1985). In this sense, organizational learning has as an intrinsic factor the collectivity, it is an activity that can only be done in groups, from the interaction. When a group acquires the *know-how* associated with its ability to perform tasks collectively, the OL is constituted (COOK; YANOW, 1996). Learning in groups is an important factor in the competitiveness of organizations (CHAN,

2003).

The group is a privileged organizational space to share and mediate the different mental models presented by individuals (PAWLOWSKY, 2001). In this sense, GL is the process of openly discussing differences of opinion, testing assumptions, and finding causes of plan failures. They influence the learning and performance of the groups, both the structural aspects, such as their composition and clarity in the tasks to be carried out, the organizational context in which they are inserted and interpersonal issues that interfere in the group's behavior (EDMONDSON, 1999). Wilson, Goodman, and Cronin (2007) point out, however, that some research that addresses group learning is still confusing because it fails to distinguish between individual learning in the context of the group and collective learning in the context of the individual.

Kim (1998) proposes an integrated model of organizational learning, which illustrates the transfer of learning through the exchange of individual and shared mental models, that is, it illustrates the articulation between IL, GL and OL. Mental models concern both the semi-permanent tacit maps of the world that individuals retain in their long-term memory, and the short-term perceptions that people construct as part of their daily reasoning processes, can be particular or shared (SENGE, 1994).

In the mentioned model, although the effects of the groups are not explicitly included, the author imputes to the groups the condition of 'micro-organization', in which there is also the sharing of individual mental models. "A group can then be viewed as a collective individual, with its own set of mental models, which contributes to shared mental models and to the organization's learning" (KIM, 1998: 78).

It is necessary to pay attention to the fact that individuals and groups do not learn the same way and at the same speed and that both learning processes can occur naturally, free of any external intervention. In other words, the learning process may occur spontaneously or be something planned and executed by organizations through training, development and education (ABBAD, BORGES-ANDRADE, 2004).

Specifically, in the health environment, as in the case of this article, the shared mental model considers the learning process as a structured activity, related to each individual, as it prepares to carry out its activities to later seek improvements in clinical and non-clinical skills. In order to expand the construction of OL in health sector organizations, the process of reflection, reinterpretation, refinement and codification of knowledge must be carried out by groups, not just individually (EDMONTON, BOHMER, 2001).

Learning enables organizations to build a foundation for understanding and interpreting their own environments and from there to access viable strategies. To do so, the learning process demands experimentation, unlearning past methods and encouraging debates between multiple points of view. It is necessary to foster a culture of shared knowledge, to encourage experimentation and leadership, to encourage tolerance and learning from mistakes, as well as to rewards policies to employees for their contributions in order to sustain this new dynamic in organization (CHAN, SCOTT-LADD, 2004). Creating conditions for organizational learning means helping individuals to take on uncertainty rather than ignoring it or avoiding it (FRIEDMAND, LIPSHITX; OVERMEER, 2001).

Recognizing that an organization can learn only from its members implies that it is necessary to activate individual characteristics that facilitate learning and its transference. Targeting this process is crucial to executive function as it ensures that learning is occurring and ensures the organization's survival over time. Well, therefore, the measurement and analysis of the process is an essential factor (FYOL; LYLES, 1985). The next topic should therefore be instruments for

measuring learning at the organizational, group and individual levels.

2.1 Measuring Instruments for Organizational, Collective and Individual Learning

Despite the recognized importance of organizational learning in the current scenario, it is observed that empirical studies receive less attention, especially those who tend to the measuring of the inter-relationship between the three levels of learning (BAPUJI; CROSSAN, 2004; ANTONELLO; GODOY, 2008; BIDO et al., 2011; CORREIA- FILE; LOIOLA; LEOPOLDINO, 2017). There are more academic researches aimed at evaluating the organizational learning capacity from models and the impact on organizational performance and innovation (RUSHEMER et al., 2007, GRAY, 2007; ALEGRE; CHIVA, 2008; ARGOTE; MIRON-SPEKTOR, 2011).

Although in a non-expressive amount, the instruments developed to measure organizational learning at the three levels are composed of questionnaires developed using trustworthiness and validation techniques. Correia-Lima, Loiola and Leopoldino (2017) analyzed 24 scales and found that these are characterized by: (1) focus on processes and learning outcomes; (2) focus on factors that facilitate learning; (3) focus on OL and performance. The same authors warn, however, that the IL conversion into OL problematic is still neglected by research, in addition to the learning of individuals in organizations remains confused with OL.

The literature review also allowed us to identify instruments close to the approach of this study, such as those developed by Watkins & Marsick (1993), the Templeton, Lewis and Snyder (2002), of Bontis, Crossan and Hulland (2002), and Lopez, Peon and Ordas (2005) and Chan (2003). The scales presented by the first four papers present much similarity in the theoretical framework. However, they are relatively punctual and do not prioritize the relationships between the levels of organizational, group and individual learning, the objective of this article .

The questionnaire developed by Chan (2003), according to the premises of this study, analyzes the interrelation between the three levels of learning (IL, GL and OL). It is based on the other three instruments to measure learning, each dedicated to one of the specific dimensions. The questionnaire consists of 41 indicators, distributed by 9 items evaluating the IL, 11 items the GL, comprising internal and external learning behaviors, and 21 items aimed at the measurement of the OL, which comprise the following dimensions: clarity of purpose and mission, commitment of leadership and delegation of power, practices and rewards, transfer of knowledge, teamwork and group problem solving. Chan (2003) validated this instrument in an Australian hospital survey in 2000, with a sample of 189 support staff. In this study, IL is not a significant prognosis of GL; already GL was significantly prognostic of the OL.

The Chan scale was validated in the Brazilian context by two empirical researches: Bido et al. (2010) and Bido et al. (2011). In the first, the sample consisted of 46 employees, installed in an industrial plant in Brazil. One of the main results was the significant relationship between GL and OL. In the second survey, the sample was 105 valid responses from a multinational financial company. In this research, the main result was the influence of IL in OL, a fact not observed in the study of Chan (2003). Among the three surveys, there were no significant differences in results, indicating a certain robustness of the instrument in the ability to adequately measure the proposed one. Thus, the questionnaire developed by Chan (2003) will also be used in this research.

Since this article relates to the hospital context, other studies that addressed aspects related to organizational learning in hospitals were also required (VASSALOU, 2001; BORBA, 2009). The study of Vassolou (2001) was applied in Greek hospitals, mapping the mechanisms

and suggesting a model of evaluation of OL based on five principles: shared mission and vision understanding, leadership towards learning, knowledge transfer, work in group and cooperation and culture of experimentation. Borba (2009) developed a model of evaluation of the learning process structured in four principles: learning processes, transformation based on attitude change, action and, creation and reflection for learning.

In fact, one of the key factors for improving the quality of care in hospital institutions is the understanding of the learning process that exists in the organization, especially in the generation of tools and methodologies that support the decision-making process (BORBA, 2009). the generation of information that subsidize such procedures. However, especially in Brazil, the research directed to this subject is very small. The instruments of Vassolou (2001) and Borba (2009), despite having some thematic similarity with that of Chan (2003), do not cover the articulation between IL, GL and OL. The next topic will describe the methodological procedures used in the research.

METHODOLOGICAL PROCEDURES

The methodological classification of the research is characterized by being exploratory and quantitative and the strategy used corresponds to the *survey* approach (HAIR Jr. et al., 2005), within a context of the case study (YIN, 2015). The organization, object of analysis, was selected intentionally, for convenience.

The instrument used for data collection was the questionnaire, and the analysis followed the statistical procedures according to the modeling of structural equations (MARUYAMA, 1998). The aim was to follow the methodological steps already used by Bido et al. (2010) and Bido et al . (2011), so that comparisons could be made.

The hospital organization selected to participate in this research is located in São Paulo - SP and is recognized nationally and internationally as a center of excellence in medical-hospital care. Among the main areas of the hospital are the Hospitalization, Critical Units and Intensive Care, Surgical Center, Service, Advanced Medicine Centers, Facilities and Structure, Blood Bank and Diagnostics and Imaging Center. The hospital is also recognized by its Institute of Education and Research, directed to the generation and dissemination of knowledge.

The nurses from the hospital were invited to participate in the study, vast majority of the participants in the study conducted by Chan (2003). Considering the hospital environment, two hundred printed questionnaires were passed on to the subject responsible for the authorization of the research, who, in turn, distributed them randomly to the coordinators of the Nursing, Lodging and Attendance areas. The collection period was July 2013. The coordinators delivered the questionnaires to their subordinates who returned them to the coordinators themselves. A total of 165 valid questionnaires were collected, with a rate of return of 82.5%.

The instrument used was based on the studies of Bido et al., (2010) Bido et al. (2011), which, in turn, represents the validated translation of the instrument elaborated by Chan (2003). In this way, concepts and constructs of these studies were fully and literally applied. At that time, therefore, there was no pretension to criticize / revise them, but only apply them in a given context and then present possible recommendations. Given the similarity of the environment in which the questionnaires were applied, hospital, the scale selected was the same as that used by Chan (2003): Lickert scale of seven points, anchored in "Totally Agree" and "Totally Disagree". The items of the instrument can be seen in the following topic, which discusses the presentation and discussion

of the results.

Initially, a missing data verification was conduced *(missing values)*. In the *software* used for the analysis, SmartPLS, these were recorded and did not exceed 6.7%. Reverse-scale items , eight in total,had the re-coded responses (1 → 7, 2 → 6, 3 → 5, 4 → 4, 5 → 3, 6 → 2, 7 → 1).

In order to estimate the relationship between IL, GL and OL, we used the structural equation modeling with estimatives from the PLS technique *(Partial Least Squares),* in view of its applicability to small sample sizes, their ability to estimate quite complex models (with a large number of latent and observable variables) and the fact that it has less restrictive assumptions regarding the distribution of variables and error terms and normality (HENSELER; RINGLE; SINKOVIC , 2009) . It is also better suited to models with a combination of formative and reflexive variables (HAIR JR.; RINGLE; SARSTEDT, 2011); as the case of this study, besides the possibility of comparison with previous researches.

With respect to the minimum sample size, the recommendation suggested in the PLS-SEM literature is that this is ten times the largest number of structural paths directed to a given latent construct in the structural model (HAIR JR.; RINGLE; SARSTEDT, 2011). Despite the limitations of this practical rule, for the present study, it is noted that at least twenty cases would be necessary, a number widely exceeded by the sample collected from 165 cases. This made possible the use of the *bootstrapping* technique.

The basic PLS algorithm follows a two-step procedure. Firstly, the reliability and validity of the measurements are examined so that the structural model estimates are evaluated in a second moment (HAIR JR.; RINGLE ; SARSTEDT , 2011). Thus, the measurement model (convergent validity, discriminant and reliability) was evaluated, removing items that had low factor loads. The analysis was completed with the preparation of the structural model, making possible a comparison with the results from Chan (2003), Bido et al. (2010) and Bido et al. (2011).

PRESENTATION AND DATA ANALYSIS

This section was divided according to the stages of analysis by the PLS technique. Considerations will be given on the profile of the respondent, on the evaluation of the measurement model and, finally, on the structural model and comparative analyzes.

4.1 Demographic and professional profiles of respondents

Through the data collected, it is possible to identify that 72.7% of the respondents are women; (49.6%), and the highest level of schooling (34.5%) is the highest level of schooling. The professional profile of the research participants was also raised. Regarding the time of institution, it was observed that although there is preponderance of subjects who worked in the hospital for at most 4 years (22.4%), it was also noticed a significant presence of those who have been members of the hospital for more than 16 years (17%).

Although the questionnaires were previously distributed randomly to the coordinators of the Nursing, Lodging and Attendance areas, these were expanded for a dispersed variety of positions and areas of action of the respondents. Nursing technicians (32.7%) and nurses (28.5%) were the most attended profession-wise; while the most frequent areas were the Hospitalization Unit (17%), Accommodations (10.3%) and ICU (9.1%).

The data that outline the profile of the individual responsible for the information analyzed here are relevant mainly in relation to issues such as age, schooling and company time,

important aspects to be considered in relation to perception about learning, since they refer to aspects such as experience and knowledge in the function performed (GHERARDI, NICOLINI; ODELLA, 1998).

4.2 Evaluation of the measurement model

The analysis of the model of measurement, or outer model, is the examination of the composite reliability, of the convergent and discriminant validity of the measures of each construct and of the relationships among them (HAIR JR et al., 2012).

As shown in Table 1, in the first column, all first and second order constructs presented the square root of Average Variance Extracted (AVE) greater than 50% (0.5), which meets the criteria of Chin (1998) and Hair Jr. et al. (2005) to indicate the existence of convergent validity. This means that the defined sets of indicators represent a unique and exclusive underlying construct (HENSELER et al., 2009). The second column shows that the composite validity values for all constructs are above 0.7 (HENSELER et al., 2009), an estimate of the internal consistency of the constructs.

Table 1 – **AVE and composed reliability of the constructs**

Constructs	AVE	Composed reliability
GL	0,6190	0,8247
IL	0,7616	0,8423
OL	0,5674	0,8927
LCPD	0,6617	0,7937
EGLB	0,6981	0,7287
IGLB	0,6562	0,786
PMC	0,6696	0,7626
WTPSG	0,7502	0,7202
IL FREQUENCY	0,7856	0,7605
IL IMPORTANCE	0,9271	0,9245
PR	0,7292	0,8191
KT	0,7007	0,7398

Note. Source: elaborated by the authors through the research data.

At this moment, consider the work of Bido et al. (2010), in which the Work Team and Problem Solving in Group (WTPSG) construct was not found to be reliable. In the case of this article, reliability is probably attributed to the larger volume of the sample, since, as in the work of the before mentioned authors and Bido et al. (2011), this construct also had one of its indicators eliminated, the same, also, due to its non-significant factorial load.

In the sequence, Table 2 presents the Cross Loadings Matrix, base for the analysis on the discriminant validity of the proposed model. Discriminant validity means that the indicators measured represent only one construct. The items on a scale should not have convergence with items on a different scale (HAIR JR et al., 2006). The model used in this paper is based on the model of the latent construct with which the latent construct is associated with the latent construct. Thus, when it is high, it is considered that the construct is unique and manages to capture some phenomenon that the other measurement models cannot.

Table 2 – **Cross Loadings Matrix.**

CON-STRUCT		INDICATOR	CON STRUCT								SSig
		11		22	33	44	55	66	77	88	
Individual Learning	1. IL Frequency	(Q18ILF) There aren't many new things to learn on my work.		-	-	-	-	-	-	-	-
		(Q34ILF) I spend a lot of the time learning new approaches on work.	**0,683**	0,266	0,366	0,388	0,301	0,278	0,333	0,389	0,00001
		(Q15ILF) I am always learning something new on my work.	-	0,570	0,315	0,355	0,334	0,357	0,323	0,414	0,291	0,00000
	2. IL Importance	(Q10ILI) To become a good employee/manager it is important to continuously better your work abilities.	0,487	**0,924**	0,354	0,336	0,399	0,318	0,315	0,378	0,290	0,00000
		(Q37ILI) To me it is important to learn with each of my work experiences.	-	-	-	-	-	-	-	-	-	
		(Q7ILI) Making mistakes is a part of the learning process.	-	-	-	-	-	-	-	-	-	
		(Q17ILI) Learn how to be a better employee/ manager has fundamental importance to me.	0,553	**0,930**	0,387	0,315	0,440	0,296	0,331	0,361	0,278	0,00000
		(Q11ILI) Sometimes I put a lot of effort into learning something new.	-	-	-	-	-	-	-	-	-	

		(Q5ILI) Taking difficult decisions pleases me.	-	-	-	-	-	-	-	-	-	
Group Learning	3. Internal Group Learning Behavior	(Q28IGLB) In our team, people discuss ways of preventing and learning with mistakes.	0,331	0,366	**0,790**	0,604	0,476	0,515	0,460	0,496	0,350	0,00000
		(Q25IGLB) In our team, time is frequently dedicated to discover new ways of making our work processes better.	0,281	0,314	**0,708**	0,433	0,317	0,270	0,216	0,239	0,194	0,00000
		(Q38IGLB) In my team, someone always makes sure that we think about our work process.	0,232	0,268	**0,575**	0,329	0,225	0,461	0,369	0,394	0,259	0,00016
		(Q30IGLB) In my team, people frequently discuss about scheduled subjects.	0,300	0,225	**0,689**	0,491	0,319	0,355	0,398	0,352	0,326	0,00000
		(Q32IGLB) The issues and mistakes of our team are never communicated to people in charge so corrective measures can't be taken.	-	-	-	-	-	-	-	-	-	-
		(Q21IGLB) My team deals with the different opinions in private rather than in public.	0,218	0,088	**0,472**	0,348	0,073	0,230	0,137	0,248	0,182	0,00844

	4.External group learning behavior	(Q24EGLB) My team frequently works with other teams to reach the organizational goals.	0,315	0,373	0,661	**0,828**	0,490	0,454	0,324	0,345	0,289	0,000 00
		(Q6EGLB) My team keeps the organization informed about what we plan to do.	0,356	0,142	0,457	**0,762**	0,468	0,335	0,355	0,403	0,271	0,000 00
		(Q16EGLB) We invite people from outside of our team to present information or debate subjects of interest with us.	0,344	0,195	0,219	**0,442**	0,314	0,314	0,340	0,411	0,266	0,027 09
		(Q36EGLB) We don't have time to inform people from outside of our team about your projects.	-	-	-	-	-	-	-	-	-	-
		(Q9EGLB) People from my team get information for work from another sources, like clients or other organizational units.	-	-	-	-	-	-	-	-	-	-
Organizational Learning	5. Purpose and Mission Clarity (PMC)	(Q26PMC) I do not understand how the organization's mission can be achieved.	0,110	0,206	0,245	0,228	**0,569**	0,307	0,204	0,277	0,177	0,000 58
		(Q23PMC) The organization's mission identifies the values to which all employees must conform.	0,471	0,410	0,348	0,491	**0,722**	0,421	0,393	0,489	0,334	0,000 00

	(Q2PMC) In this organization, employees have opportunities for self-evaluation in relation to achieving goals.	0,250	0,389	0,275	0,419	**0,745**	0,496	0,481	0,437	0,460	0,00000
	(Q8PMC) There is widespread support and acceptance from staff about the organization's mission.	0,190	0,154	0,372	0,477	**0,627**	0,372	0,312	0,277	0,347	0,00002
6. Leadership commitment and power delegation (LCPD)	(Q20LCPD) Directors and employees of the organization share a common vision of what we should accomplish in our work.	0,341	0,218	0,471	0,446	0,532	**0,736**	0,527	0,627	0,356	0,00000
	(Q39LCPD) In this organization, managers accept criticism without being too defensive.	0,113	0,121	0,300	0,231	0,320	**0,689**	0,490	0,314	0,208	0,00000
	(Q13LCPD) In this organization, managers often give helpful feedback that helps identify potential problems and opportunities.	0,344	0,317	0,462	0,439	0,423	**0,608**	0,450	0,303	0,310	0,00000
	(Q3LCPD) In this organization, managers often involve employees in important decisions.	0,312	0,201	0,337	0,336	0,363	**0,715**	0,629	0,382	0,330	0,00000

		(Q12LCPD) The directors of the organization resist change and are afraid of new ideas.	0,208	0,257	0,280	0,266	0,346	**0,542**	0,314	0,205	0,321	0,00019
	7. Practices and Rewards (PR)	(Q4PR) I can often propose new ideas for the organization.	0,381	0,285	0,356	0,390	0,372	0,634	**0,749**	0,409	0,390	0,00000
		(Q31PR) In my experience, new employees in this organization are encouraged to question the way things are done.	0,220	0,150	0,348	0,316	0,334	0,474	**0,735**	0,434	0,388	0,00000
		(Q27PR) In this organization, managers encourage employees to experiment with the goal of improving the work processes.	0,350	0,391	0,478	0,394	0,481	0,616	**0,765**	0,486	0,305	0,00000
		(Q29PR) Innovative ideas that work are often rewarded by the direction of the company.	0,223	0,160	0,246	0,236	0,381	0,410	**0,664**	0,344	0,288	0,00000
		(Q40PR) In my experience, the new ideas of the employees are not treated seriously by the management of the organization (c)	-	-	-	-	-	-	-	-	-	-
	8. Knowledge transference (KT)	(Q41KT) I often talk to people in other areas about successful programs or work activities to understand why they succeed.	0,340	0,158	0,301	0,286	0,293	0,295	0,360	**0,568**	0,249	0,00096

		(Q19KT) New work processes that may be useful to the organization as a whole are usually shared with all employees.	0,424	0,425	0,461	0,455	0,503	0,514	0,419	**0,789**	0,392	0,00000
		(Q22KT) In this organization we have a system that allows the learning of successful practices of other organizations.	0,296	0,213	0,345	0,334	0,371	0,382	0,438	**0,727**	0,339	0,00000
		(Q14KT) Failures are rarely discussed constructively in our organization.	-	-	-	-	-	-	-	-	-	-
	9.Work Team and Problem Solving in Group (WTGPS)	(Q35WTPSG) The current organizational practice encourages employees to solve problems together before discussing them with their manager.	0,320	0,079	0,337	0,249	0,301	0,372	0,416	0,368	**0,763**	0,00000
		(Q1WTPSG) In this organization, problem-solving teams are characterized by having employees from various functional areas.	0,306	0,388	0,272	0,326	0,468	0,319	0,286	0,342	**0,738**	0,00004
		(Q33WTPSG) We rarely create informal teams to solve organizational problems.	-	-	-	-	-	-	-	-	-	-

Note. Source: elaborated by the authors through the research data.

The values in bold are the factorial loads of the indicators corresponding to their respective constructs. As can be seen, these loads are larger than the others, of other constructs,

in this way, it is possible to attribute the discriminant validity to the model in its entirety. The indicators that do not have numbers are filled by "-", and are the ones that were eliminated from the model due to their low factor load, considering *T = 2.56*. The values of *p* were significant for all items (*p <0.01*), except item Q16EGLB (0.02709). With the exception of the indicators Q18ILF and Q37ILI, it is observed that all other items eliminated in this study were also by at least some others, if not by two of the works in comparison (CHAN, 2003; BIDO et al., 2010; al., 2011). This fact may indicate possible problems with such indicators, making their revisions necessary for future studies.

Another criterion to be considered in the analysis of discriminant validity is that of *Fornell-Lacker*, according to which a construct shares more variance with its indicators than with any other latent variable of the structural model. In statistical terms, the AVE square root of each construct should be greater than the greater correlation of this construct with any other (CHIN, 1998; HAIR Jr. et al., 2011). The values of the AVE square root are in bold, in Tables 3 and 4. From Table 3, it is possible to confirm the discriminant validity of the model for the latent variables of the first order, and in Table 4, this ratification is given by latent variables of second order.

Table 3 – **Pearson's Correlation of the first order dormant variables.**

First Order Constructs	LCPD	EGLB	ILGB	PMC	WTPSG	IL Frequency	IL Importancy	PR	KT
LCPD	**0,662**								
EGLB	0,527	**0,698**							
IGLB	0,566	0,688	**0,656**						
PMC	0,607	0,614	0,459	**0,670**					
WTPSG	0,462	0,382	0,407	0,510	**0,750**				
IL Frequency	0,407	0,461	0,420	0,401	0,418	**0,786**			
IL Importancy	0,331	0,351	0,400	0,453	0,306	0,562	**0,927**		
PR	0,741	0,465	0,498	0,540	0,470	0,409	0,349	**0,729**	
KT	0,580	0,521	0,535	0,568	0,474	0,505	0,398	0,578	**0,701**
Average	4,688	5,493	5,286	5,752	4,865	5,605	6,603	4,561	5,111
Median	4,740	5,670	5,538	5,949	5,000	5,922	7,000	4,775	5,317
Standard Deviation	1,243	1,126	1,078	1,026	1,288	1,098	0,962	1,356	1,268

Note. Source: elaborated by the authors through the research data.

Tabela 4 – **Pearson's Correlation of the second order dormant variables.**

Second Order Constructs	GL	IL	OL
GL	**0,619**		
Il	0,501	**0,762**	
OL	0,681	0,545	**0,567**
Average	5,376	6,262	5,011
Median	5,557	6,528	5,197
Standard Deviation	1,016	0,898	1,006

Note. Source: elaborated by the authors through the research data.

The value highlighted in Table 3 indicates that between PR and LCPD constructs suggests that there is no discriminant validity between them. However, this fact, as occurred in Bido et al. (2010), is not a problem, since both latent variables were used as reflective indicators of the same construct, OL. In the case of the value highlighted in Table 4, this would indicate the lack of discriminant validity between the GL and OL constructs. However, since its distance from AVE square root is not very high, and that there is a justification for the GL construct to indirectly bring the effects of the IL to the OL construct, this inference must be disregarded. Therefore, the discriminant validity of the model is confirmed.

In relation to the descriptive statistics presented, the construct "Importance of IL" obtained the highest mean (6.603), while the latent variable "Practices and Rewards" showed the lowest average (4,561). These results indicate that, on the one hand, respondents affirm that to become a good employee it is important to continuously improve work skills and that it is fundamental to learn how to be a better employee, on the other hand, the practices and rewards that would potentially stimulate and reinforce these behaviors are not considered relevant. According to the indicators of this construct, it is evident that the respondents do not agree that they can often propose new ideas for the organization or that the new employees are encouraged to question the way things are done. They also disagree that managers encourage employees to experiment, as well as that innovative ideas that work are often rewarded by the direction of the organization.

In this context, it is emphasized that not only adopting and implementing the OL has become essential, but also institutionalizing it. To that end, Chan and Scott-Ladd (2004) postulate the need to promote a culture of shared knowledge, in which there is a development and facilitation of a work environment that encourages experimentation, tolerance and learning from mistakes. how to reward employees for their contributions. We can see the contrast of this assertion in the reality of the organization studied, according to the respondents' view, regarding rewards practices, however, we must consider the intrinsic motivation of professionals in this sector (THOMAS, 2009).

4.2 Assessment of the structural model

All previous validity and reliability analyzes indicated the pertinence of maintaining all parameters proposed in the measurement model (*Outer Model*), which, once validated, made it possible to proceed to the structural model evaluation stage (*Inner Model*) (HENSELER et al., 2009). The structural model refers to the actual relations between IL, GL and OL.

In the PLS-SEM method, the indicator that best reflects the fit of the structural model is the coefficient of determination (R^2), which represents the portion of the explained variance of each endogenous latent variable (HAIR Jr. et al., 2012). The R^2 value should be sufficient for the model to have a minimum level of explanatory power, so the higher the model's fit, the better. Figure 1 represents the model in which IL0 and GL were used as predictors of OL and the R^2 values highlighted within the constructs.

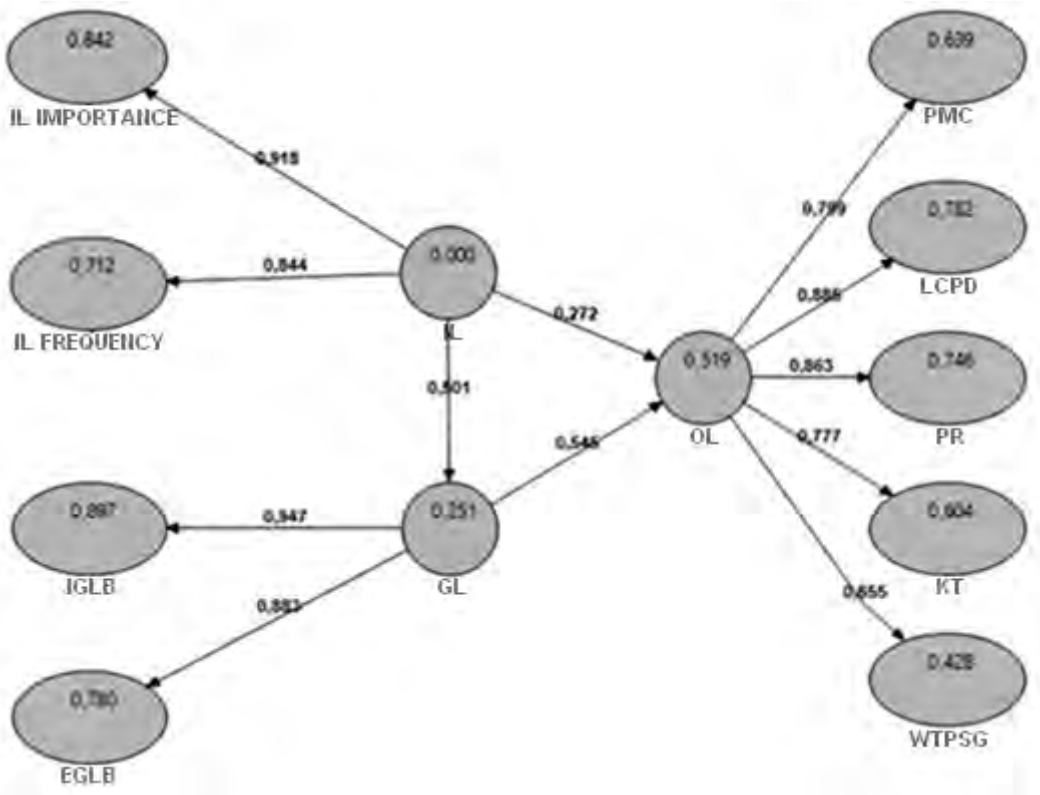

Figure 1. Structural model of the relations between IL, GL and OL.

All coefficients are in the standardized form and are highly significant (p <0.01), except for the coefficient between IL and OL. A significance estimated by means of bootstrapping with N = 75 and 500 repetitions. The indicators were omitted for better arrangement of the figure.

IGLB = internal group learning behaviour; EGLB = external group learning behaviour; PMC = purpose and mission clarity; LCPD = leadership commitment and power delegation; PR = practices and rewards; KT = knowledge transference; WTPSG = work team and problem solving in group; IL = individual learning; GL = group learning (GL); OL = organizational learning.

Source: elaborated by the authors through the research data.

Figure 1 indicates the proposed structural model. The values entered in the constructs IL, GL and OL are the values of R^2 and indicate the explanation of the variations between one and the other. In this sense, 51.9% of the variations in OL are explained by variations in GL and IL, while 25% of changes in GL are explained by variations in IL. The values in the arrows represent the values of the structural coefficients and explain that GL influences substantially OL (0.545) in comparison to IL (0.272).

After analyzing the measurement and structural models of this article, Table 5 shows the values of R^2 and the structural coefficients of the surveys of Chan (2003), Bido et al. (2010) and Bido et al. (2011) and current research, all considering p <0.01, allowing comparison.

Table 5 – **Comparison between R^2 and the structural coefficients of the Chan (2003), Bido et al. (2010), Bido et al. (2011) studies and the current research.**

Study		**Chan (2003)**	**Bido et al. (2010)**	**Bido et al. (2011)**	**Current Research**
Studied Organization		Australian Hospital	Plastic Products Industry	Financial institution	Brazilian Hospital
R^2	GL	6%	15%	9%	25,1%
	OL	24% - 38%	47%	41%	51,9%
Structural coefficient	IL →GL	-	0,387	0,301	0,501
	IL →OL	n.s.	0,136 (n.s)	0,400	0,272
	GL →OL	-	0,618	0,395	0,545

Nota. n.s. = non-significant to $p < 0,01$.

Source: elaborated by the authors through the research data.

The data contained in Table 5 make it possible to verify that the results of the current research have R^2 values higher than the other works. The present research resembles that of Bido et al. (2010) as both have their structural coefficients of greater representativeness in the relation GL → IL, while the lowest value relates to the relation IL → GL. Regarding Chan's (2003) research, it is noted that although the hospital environment is also present in the current research, R^2 values, although higher for GL and lower for OL, are reasonably distant. In terms of distribution, however, the works resemble each other.

The results of the current research, in consonance with the other three papers, reinforce Kim's (1998) idea that the importance of IL for OL is obvious and subtle, but mainly subtle, because, since the association between the two is not expressive, the effect of IL on the OL is indirect. If it is plausible to say that an organization can learn only from its members, it is even more pertinent to argue that an organization can only learn from its groups.

Individual learning is a product of the interaction experience of the individual with his environment (ZANELLI, 2004). Thus, as this environment creates other individuals in interaction with each other, we have the groups. Yet, there is the argument that organizational learning is not simply the sum of each individual learning of its members, and that organizational learning has as its intrinsic factor the collectivity (COOK, YANOW, 1996). Such assertions, together with the presented results, instigates the conclusion that GL is a major influence factor of OL in comparison to IL.

FINAL CONSIDERATIONS

The present article was developed with the purpose of empirically analyzing the articulation between the individual, group and organizational levels of learning in a hospital institution. In comparison, it was observed that between the current research and the works of Chan (2003), Bido et al. (2010) and Bido et al. (2011), there were no substantial discrepancies. The results presented, significant, demonstrate that learning in the work groups is related to learning that occurs at the individual and organizational levels, however, individual learning was not significantly associated with organizational learning.

In the case of the hospital environment, the circumstances of disproportion between IL, GL and OL may be more specific to the extent to enlarge the construction of the OL in health sector organizations, the processes of reflection, reinterpretation, refinement and codification of knowledge must be performed by groups, not just individually (EDMONDSON; BOHMER, 2001). Thus, it is speculated that, necessarily, organizational learning is dependent on learning in the groups, from the passage from IL to GL for OL to occur.

Another point of attention is due to the perception of the members of the organization studied in relation to the importance of IL in contrast to the practices and rewards in this topic. It was seen that, although the first item had significant expressiveness, the practices and rewards that would potentially stimulate and reinforce these behaviors were not. These results are supposed to be consonant with the idea that certain work activities, such as those performed by health professionals, do not require their subjects external stimuli and rewards. This is due to the fact that certain conditions that characterize the activity make professionals stimulated by intrinsic motivation (THOMAS, 2009), and this fact does not mean that these people are not learning in their work environment. In the case of the results found here, this circumstance is feasible, since the respondents consider the importance of individual learning a fundamental aspect.

The direction of the organizational learning process is crucial to the executive function as it ensures that it is occurring and ensures the organization's survival over time. In this context and the results of the research, it is pointed out that in the organization studied there are indications of the need to deepen the processes of transference of learning, from the transition from IL to OL through GL. This is due to the importance attributed to IL by the respondents and their necessary transfer to GL, given the low correlation between IL and OL directly. Hence, the promotion of a culture of shared knowledge, which can be done by encouraging experimentation and leadership, tolerance and learning from mistakes, as well as by rewards to employees for their contributions.

Finally, it is necessary to emphasize some limitations of the study. Firstly, it should be noted that the research carried out does not make it possible to generalize to the whole organization studied. The joints found between OL, GL and IL are results from the respondents' view. If we consider the entire staff of the hospital in question, the sample used is only a portion of some specific sectors.

Second, there are limitations in the form of application of the questionnaire. Since these were administered by coordinators of the organization, the researchers had little control over the sample, which may also have caused some systematic error. Limitations found in the instrument used must also be admitted. Some questions were formulated so as not to take certain care with words that may have tended the respondent or even biased the questionnaire (PAYNE, 1951). Kim's (1998) model can be used as a basis for a reformulation of the questionnaire, since it provides for a more complete cycle of learning, allowing for more accurate analyzes of the articula-

tion and transfer of learning between three levels.

From the empirical application of a research that seeks to investigate the articulation between IL, GL and OL, the results presented in this research together, should sharpen the researcher to deepen this theme, with emphasis on the passages of learning between the considered levels. It is noteworthy that the literature concentrates substantially on the individual and organizational levels and that the interorganizational level was to be neglected (CORREIA-LIMA; LOIOLA; LEOPOLDINO, 2017), however, group learning has been summarized in the contexts in which the methodology (BIDO et al., 2010; BIDO et al., 2011).

For future studies, it is recommended that competitive models be elaborated and tested, with the following formations: 1) to use training indicators for latent variables of first order for IL and GL; 2) eliminate the first-order variables of the IL and GL constructs; 3) reverse the association between IL and GL; 4) and use the recursive association between IL and GL. It is also necessary to review some questions about the measurement model used, in relation to the reflexive indicators in the first order variables. These recommendations may represent refinements in the model proposed by Bido et al. (2010), these refinements are feasible and necessary for advances in the thematic that refers to the relationship between the individual, group and organizational dimensions of learning in this methodological research format.

Also, qualitative researches cannot be discarded, as deeper approaches are able to offer greater understanding about the learning in the three levels worked, particularly, as well as on their articulations, in empirical context. More urgent than statistical refinements and qualitative studies, however, is the investigation and the theoretical advance in the area, especially in relation to the learning in groups, since although it directly affects the organizational learning, this is a subject that lacks studies and demand scientific discoveries.

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