

Organizational Culture and Favorable Environment for the Development of Innovations

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Abstract

The objective of the research dialogues with recent studies on the presence of a favorable environment for innovation while respecting and guided by theoretical perspectives that were built by classic authors in this field of research, such as Geert Hofstede and Edgar Schein. 258 questionnaires were answered and the data obtained were analyzed using structural equation modeling (SEM) after tabulation in statistical analysis software. The research model is quantitative-descriptive and is based on the methodology developed by MIRP and later adapted by other authors. As a result of this research, it was identified that employees perceive the culture of the analyzed organization with a high level of collectivism and high cultural congruence. It was found that employees have a perception that there is a small power distance. At the end of the research, it is possible to affirm that there is a relationship between the organizational culture and the favorable environment for the development of innovations in the analyzed company.

Keywords

Organizational Culture, Innovation, Innovation Environment

1. Introduction

This research understands innovation as the process in which new practices, products and services are developed. These products, services and practices can generate results that are adapted and that seek to meet market demands. The research seeks to dialogue with recent studies on the presence of a favorable environment for innovation while respecting and guided by theoretical perspectives that were built decades ago by classic authors in this field of research, such as

Geert Hofstede and Edgar Schein.

In this research, it is understood that this environment, or this innovative logic, can be perceived as a fundamental part of what is defined as organizational culture. Through the application of questionnaires aimed at employees, it is expected to understand how employees see the presence or not of this structure in their daily lives as an employee of the company studied.

The general objective is to analyze the relationship of cultural dimensions and external and internal aspects to the development of innovations in a retail supermarket chain. To this end, the evaluation model proposed by Machado and Carvalho (2013) [1] will be used, which seeks to demonstrate the impact of organizational culture on the innovation environment and its relationship to the result of innovation.

The present study will use innovation in services, considering that the target population of the research will be a retail supermarket chain in Santa Catarina that relies on the use of services. Finally, this research project seeks to achieve an understanding of the relevance of understanding retail sales networks as environments conducive or not to innovation. This dialogue will be traced according to the perceptions built about the recent growth of the retail supermarket chain that is the object of analysis. We understand that the advance of theories about the culture of innovation did not follow the development that can be observed in service companies in time. The space and protagonism that the culture of innovation has assumed may not be identified in the real proportion of its relationship in the most recent researches and studies.

From this understanding, the question is: What is the relationship between organizational culture and the environment conducive to the development of innovations in a retail supermarket chain in Santa Catarina?

2. Organizational Culture

The term culture appears in the 19th century as a derivation of the German Kultur, referring to the characteristics of a social group. Characteristics such as beliefs, values, norms and rules, which define the behavior and thinking of a social group (Kroeber & Kluckhohn, 1952) [2]. For Carvalho (2020) [3], the word culture refers to the practices and climate that organizations perform to understand people.

For Trompenaars (1994) [4] and Tibola (2020) [5], culture is subconscious, in the sense that no one tries to verbalize it, but it creates the roots of action. This led an anthropologist to compare it to an iceberg, most of which, the implied part, is submerged. According to Carvalho (2020) [3] and Geertz (1973) [6], culture is the means through which people communicate, perpetuate and develop their knowledge about attitudes towards life. Culture would be for Geertz, a web of meanings in terms of which men interpret their experiences and guide their actions.

Schein (1984, p. 3) [7] defines organizational culture in the following terms:

Organizational culture is a pattern of basic assumptions that a particular group invented, discovered, or developed in order to learn to deal with its problems of external adaptation and external integration, and that have worked well enough to be considered valid, and so can be taught to new members as the correct way to perceive, think and feel in relation to these problems.

Organizational culture allows analyzing an organization as a set of interactions between people, which has a certain ability to build, define, change and replace its cultural elements. Authors such as Schein (1984) [7] and Carvalho (2020) [3] allow us to build perspectives that analyze organizational culture as part of a social structure that keeps its members connected, dependent and relational to each other.

The first studies on organizational culture appeared in the 1950s, but it was from the 1980s onwards that the topic gained strong notoriety in the academy, when researchers realized that organizational culture is a strong influencer of the behavior of organizations, groups and individuals, directly interfering in the internal management of companies, as well as in the way they relate to and react to external and internal pressures (Kroeber & Kluckhohn, 1952) [2].

Fernandes Neto (2019, p. 10) [8] defines organizational culture as “[...] values, beliefs and symbols [that] impacted people’s behavior, economic performance and organizational change processes [...]”, allowing the distinction of corporate culture, which would be better represented as “[...] a set of people with the objective of government [...], refers to the values made explicit by the highest managerial and administrative segments of organizations [...], insofar as the mentioned values relate to what the hierarchically superior segments of the organization [comprise].”

For these authors, organizational culture is not just a way of thinking, and ways of behaving, but also in its most materialized and tangible reflections, ranging from a company’s logo to its characteristic color, or in some cases represented by the figure of a leader or the surname that the company carries.

Organizational culture fills the gaps between what is formally expected and what actually occurs. Culture expresses and explains, therefore, the way in which members direct their day at work, their forms of communication and their actions, as well as the rules, practices and customs that guide the life of the organization (Hatch, 2018) [9].

3. Innovation

The word innovation comes from the Latin *innovo* and *innovare*. Refers to making something new, renewing something existing, including something new, making something more improved. In this sense, the word innovation has at its core the mention to reinvigorate or revisit something that already exists, in order to make it better or more attractive (Bispo, 2012) [10].

Petroski (2008) [11] and Carvalho, Reis and Cavalcante (2011) [12] differentiate the concept of innovation from the concept of invention. Invention is asso-

ciated with the creation of a new procedure, service or product, while innovation occurs when there is effective implementation of the invention in a way that generates value, generating economic or social development. Thus, innovation can constitute a strategic advantage over competitors. Innovation is defined by an equation: “*Innovation = idea + implementation of actions + result*” (Carvalho *et al.*, 2011, p. 25) [12].

The idea is also defended by Batista (2020) [13], when the author states that when uniting new processes with new goods and methods, the return will not always be in an innovation. The author warns that an invention that does not reach practice should not be considered economically relevant; therefore, it is not an innovation. The application of an improved or improved invention requires techniques and knowledge other than those used to develop it. A certain function may be responsible for invention and innovation, but this is not pre-determined, but developed (Carvalho, 2020) [1]. For example, a business administrator can prove to be a great inventor while a great capitalist, but it is not something natural, but by competence and coincidence (Vale, 2014) [14].

Innovation has become a category of analysis and strategic importance, especially after the list of participants in the MIRP (*Minnesota Innovation Research Program*). According to Van de Ven and Angle (1990) [15] these researchers present innovation as the development or presentation of something that is characterized by the inclusion of new production processes, new production technologies, new internal organizations in the company, among others.

MIRP initially developed 29 dimensions for analyzing organizational culture. The studies by Machado (2004) [16] and Machado and Carvalho (2013) [17] indicated changes in the number of dimensions, reaching a model with 10 dimensions.

Favorable Environment for Innovation and Organizational Culture

The last part of this chapter is based on the perspectives of Bruno-Faria and Fonseca (2014) [18] who discuss measures for analyzing the culture of innovation in a company, as well as on the conceptions of Bispo (2014) and Machado, Carvalho and Heinzmann (2012) [17]. That analyzes the development and absorption of innovation in organizational culture in different business contexts.

Batista (2020) [13] and Barbiri (2003, p. 16) [19] suggest that ICT (Information and Communication Technology) companies have an environment that is favorable to the development of innovation. Throughout the construction of this chapter, other bibliographies were consulted, aiming to broaden the spectrum of perception on the relationship between innovation and organizational culture. These researches are summarized in the following paragraphs.

Ali Taha , Sirková and Ferencová (2016) [20] for example, argue that there are associations between all pairs of variables that were surveyed by them, with the strongest associations being those between psychological safety in the workplace and employees' willingness to create new ideas. The same authors also state that

there are strong associations between interpersonal relationships at work and the individual creativity of each employee.

4. Methodology

The research will be carried out with a supermarket chain that has been operating in the retail sales sector since 1960. The company is headquartered in Içara, in the southern region of Santa Catarina. It currently maintains more than 15 stores that are spread throughout the state and has more than 6 thousand employees.

4.1. Population and Sample

The total population working at the company is made up of 6000 employees distributed in more than 15 stores that are spread throughout the southern region of Brazil. One unit, with 312 employees, was selected to respond to the survey. They were selected for geographic convenience and access location, covering all employees of the respective unit. In these terms, questionnaires were applied to all 312 employees, where 54 questionnaires had to be discarded at different times of the research. Hair *et al.* (2009) [21] suggest an ideal sample size of 200 minimum elements. Considering that the research uses 258 questionnaires, the value is well above the minimum proposed by the author.

In the research, the analyses that will be used are guided by structural equation modeling (SEM) to verify the relationship of one variable over others. This modeling is a set of statistical procedures that aim to understand the relationships between multiple variables, verifying the structure of interrelationships that are obtained through equations, such as multiple regression.

As the survey has 45 questions for only 13 dimensions, this situation is complete for this survey. Due to the difficulty in collecting information and data with large samples, it becomes a main issue to delimit the ideal sample size that is methodologically viable and reliable for sample analysis. Larger samples often present more stable results, which allow the replication of research (Hair *et al.*, 2009) [21].

4.2. Collection

Data collection will occur through the application of a questionnaire that is attached, consisting of 45 closed questions and an open question. This set of questions will design the model for analyzing the environment favorable to innovation and the impact that organizational culture has on the respective environment. These 45 questions are divided into two groups, a first with 28 questions that refers to innovation and a second 17 questions related to organizational culture.

A set formed by thirteen dimensions will be used, following an organization distributed between internal and external dimensions. Machado and Carvalho (2013) improved the model [1]. These three sets of dimensions are representa-

tive of ten more specific dimensions, as already reported. The ten dimensions can be seen in **Table 1**.

The model seeks to prove, or not, the impact of organizational culture on the internal and external dimensions of an organization on the favorable environment for the development of innovations in the same organization. The dimensions were presented in **Table 2**.

5. Results

The data were initially analyzed through descriptive statistics, aiming to build an analysis of the behavior of each of the dimensions that are used in this research. In a second moment, the MEE technique, called Structural Equation Modeling, was used, seeking to analyze the measurable relationships between the dependent and independent variables.

5.1. Descriptive Data Analysis

A first analysis was carried out on the characteristics of the interviewees, starting with the distribution of the age group of the interviewees.

Table 1. Dimensions used in data collection (1).

Groups		Dimensions
Results	D1	Results
	D2	Law Suit
	D3	Resources
	D4	Leadership
Internal dimensions of the innovation group	D5	Autonomy:
	D6	Internal relationship of the innovation group
	D7	External relationship to the innovation group
Dimensions external to the innovation group.	D8	Dependence on External Resources
	D9	Formalization
	D10	Relationship Effectiveness

Source: Research data; Machado, Carvalho and Heinzmann (2012, adapted).

Table 2. Dimensions used in data collection (2).

Group		Dimensions
Organizational culture.	D11	Individualism versus collectivism
	D12	power distance
	D13	cultural congruence

Source: Research data; Bates *et al.* (1995, adapted).

It is possible to verify in **Table 3** that most of the interviewees are young. More than 40% of respondents are under 25 years of age. A minority refers to older respondents, where respondents over 40 years of age refer to just over 15% of the total number of respondents.

It is possible to verify in **Table 4** that most of the interviewees have at least high school. More than 70% of those interviewed have high school or higher education. Only 5% of respondents have only primary education.

In **Table 5**, it is possible to verify that most respondents have worked for less than a year at the company, corresponding to almost 36% of employees. Half of the respondents work between one and six years at the company. Finally, less than 15% of the employees interviewed have worked at the company for more than 6 years.

Table 3. Age group of respondents (3).

age group	Percentage
under 18 years old	5.4%
From 18 to 25 years old	35.3%
From 26 to 30 years old	20.2%
From 31 to 40 years old	23.6%
From 41 to 50 years old	8.9%
over 50 years	6.6%

Source: Research data.

Table 4. Education of respondents (4).

Education	percentage
Primary	5%
First degree	21.7%
High school	60.5%
Graduation	11.6%
Postgraduate studies	1.2%

Source: Research data.

Table 5. Time of activity of respondents in the company.

time in the company	percentage
Up to 1 year in the company	35.7%
From 1 to 2 years	15.1%
From 2 to 4 years	15.1%
From 4 to 6 years	19.4%
From 6 to 8 years	11.2%
over 8 years	3.5%

Source: Research data.

5.2. Characterization of the Favorable Environment for the Development of Innovation

Once the characterization of those who answered the questionnaire was concluded, an evaluation of the frequencies of the questions referring to each of the dimensions was carried out, in what refers to the favorable environment for the development of innovations. This information is presented in the following tables.

1) Dimension 1

Analyzing the dimension of results, it is possible to observe the degree of employee satisfaction that is perceived on the implementation of the suggested idea. Analyzing the three questions, we observed agreement values higher than 70% of the answers. The percentage of disagreement, in turn, varies between 12% and 15%, representing a low perception of dissatisfaction.

2) Dimension 2

The second dimension, which refers to processes, measures the level of clarity or prior knowledge about the processes that employees have regarding the implementation of ideas or innovations. It allows measuring whether the company's processes are sufficiently described and directed to allow a favorable environment for the development of innovations.

This dimension is also measured with a level of agreement considered high. Their questions have agreement ranging from 61% to 77%, while disagreement on the same questions varies from 11% to 19%.

3) Dimension 3

This dimension is limited to analyzing the availability and amount of resources that employees have access to in the need to execute an innovation idea.

It is noticeable that the concordance values are still higher than the discordance values, as in the dimensions previously analyzed. The percentages vary between 50% and 79% of agreement and between 11% and 36% of disagreement. These values suggest that as the need for financial, human and material resources arises, there is availability for employees during the execution of their ideas.

4) Dimension 4

Dimension 4 presents employees' perceptions of leadership in the workplace. This dimension allows measuring how they perceive the reactions of immediate superiors in the execution of innovation ideas, with different levels of success. Even though they are higher than 50% of the answers, the agreement values are average, ranging between 51% and 68%. Disagreement values range from 10% to 29%.

5) Dimension 5—Autonomy

Dimension 5 reflects the ability and openness perceived by employees to collaborate with their ideas and opinions in order to foster the process of building innovation in their work environment.

The perceived values for the variables that contribute to the autonomy dimen-

sion suggest that the values are more moderate than those observed in other dimensions. Agreement reached minimum and maximum values of 46% and 62%, respectively, while disagreement presented limits of 24% and 36%, exceeding the values presented in the previous dimensions.

6) Dimension 6—Internal relationship with the innovation group

This dimension seeks to present the existing synergy between the members of the innovation group, considering aspects related to interaction and consensus, in addition to the possibilities of containing conflicts.

The values found are modest, but still within the tolerable range, and in one of the variables a clear and proportional division between disagreement and agreement was observed. Agreement presented values of 39.5%, 55.4% and 62.8%, while disagreement presented values of 20.9%, 31.4% and 41.5%.

7) Dimension 7—External relationship with the innovation group

Dimension 7, which presents the relationship external to the innovation group, seeks to understand how employees from different areas or sectors perceive the interactions they promote as innovation groups.

The values observed in the variables of this dimension are considered positive and high, reaching the minimum and maximum limits of 57% and 70% for agreement and between 17% and 23% for disagreement.

8) Dimension 8—Dependence on external resources

Dimension 8, represented in **Table 6**, presents the perception of dependence

Table 6. Reliability of the dimensions that characterize the favorable environment for the development of innovations.

Group	Dimension	Perception	Cronbach's alpha
Internal dimensions of the innovation group	D1 Results	Yea	0.896
	D2 Law Suit	Yea	0.821
	D3 Resources	Yea	0.847
	D4 Leadership	Yea	0.607
	D5 Autonomy	Yea	0.722
	D6 Internal relationship of the innovation group	Yea	0.692
	D7 External relationship of the innovation group	Yea	0.712
Dimensions external to the innovation group	D8 Dependence on external resources	Yea	0.668
	D9 Formalization	Yea	0.727
	D10 Relationship effectiveness	Yea	0.882
Organizational culture	D11 Individualism versus collectivism	Yea	0.924
	D12 power distance	Yea	0.798
	D13 cultural congruence	Yea	0.930

Source: Research data.

on external resources. This dimension makes it possible to verify the need for support, help or information that is provided by other groups for the execution of an idea or innovation.

The values perceived by the employees have an agreement variation between 37% and 68% and a disagreement variation between 22% and 55%. Disagreement above the value considered regular and agreement below the expected value may be related to the question, which asks whether the employee had one or more activities performed by another employee, and to a limited ability to understand the question. The measured values should not be considered as bad, as they probably refer to the high responsibility of employees for the activities that are linked to their position or person.

9) Dimension 9—Formalization

Table 6 presents the constituent values of dimension 9, which refers to the aspects of formalization. This dimension aims to measure the degree of formalization of tasks that can impact on a greater or lesser capacity for innovation.

Agreement ranges from 52% to 54% while disagreement ranges from 30% to 34%. Although the discordance values are slightly higher than expected, the concordance values are greater than 50% and indicate that there is high concordance in all aspects of this dimension. These values confirm the employees' perception of the need for oral and written communication with a certain level and standard of formalization.

10) Dimension 10—Relationship effectiveness

Dimension 10 represents how innovation groups that participate in innovation processes understand the partnerships, exchanges and exchanges produced during the execution of ideas or innovation.

The percentages of agreement for this dimension range from 48% to 60%, while the percentages of disagreement range from 19% to 32%. These values indicate that there is a high perception of the potential of exchanges and partnerships that are carried out during the innovation processes.

5.3. Characterization of Organizational Culture

11) Dimension 11—Individualism versus collectivism

Dimension 11 presents the perceptions of employees of the analyzed company about the relationship between individualism and collectivism. If, on the one hand, it measures activities carried out in a team, on the other hand, it measures tasks that are performed individually, in addition to contrasting both contexts in the work environment.

The table reveals a very promising value in the perception of employees about how relationships are built in this institution. The agreement varies between 58% and 74%, while the disagreement varies between 12% and 23%, revealing a collectivist scenario for this dimension.

12) Dimension 12—Power Distance

The power distance dimension measures the variation in the relationship in

the processes by the different profiles of employees, when and how each employee can interfere or change in the institution's processes.

The measured values present an agreement that varies between 51% and 68% and a disagreement that has limits between 14% and 31%. These values indicate a positive perception of the current situation of power distance for the employees of this institution. There is room for employees in the lower layers of the company to propose innovation processes, for example.

13) Dimension 13—Cultural Congruence

The dimension of cultural congruence refers to the homogeneity that is perceived by employees and by the different areas of an institution. It suggests unity between different sectors and employees.

The agreement presented values perceived by the employees between 74% and 82% while the disagreement varied between 8% and 14%. These values suggest a good perception of employees about cultural congruence in their work environment. These values refer to the pride of employees and the identification of a cultural unit in the company.

5.4. Dimension Reliability

The analysis of the frequency of occurrence of values in each variable of each dimension of innovation and organizational culture allows measuring how the dimensions are understood by the employees of the analyzed company.

To verify the reliability of the answers in the analyzed dimensions Hair *et al.* (2005) [21] informs that Cronbach's alpha must be greater than or equal to a numerical index. This numerical index is calculated as indicated by Hair *et al.* (2005) [21] and suggests that the minimum value should be 0.7, with 1 being the maximum value in terms of reliability of the answers. Other authors, such as Malhotra (2001) [22] may suggest minimum values greater than 0.6, using calculations proposed by Hair *et al.* (2005) [21].

Dimensions D4, D6 and D8 had Cronbach's Alpha values lower than 0.7, but higher than 0.6. The other dimensions (D1, D2, D3, D5, D7, D9, D10, D11, D12 and D13) present values greater than 0.7. According to Malhotra (2001) [22], the values of all dimensions can be considered reliable, and for this reason all dimensions will be used in the final stages of analysis of this research.

5.5. Diagram of the Organizational Culture Relationship Model on the Favorable Environment for the Development of Innovation

Seeking to analyze the relationship of organizational culture on the environment favorable to the development of innovations, structural equation modeling (SEM) was used as a methodological support.

A matrix was simulated, where all the dimensions proposed in the model were analyzed simultaneously, such as the dimensions of organizational culture, the internal dimensions of innovation, the external dimensions of innovation and the result.

For Hair *et al.* (2005) [21], the diagram is the basis for analyzing how the relationships between dimensions are related. It is still possible to calculate the simple correlation between any two variables just by summing the paths of their points in the diagram. The results are presented according to the hypotheses developed.

H1: Organizational culture has a positive relationship with the internal dimensions of the innovation group.

Hypothesis 1 (H1) aims to confirm the relationship between organizational culture and the internal dimensions of the innovation group.

In **Figure 1**, we can see that the construct called “Organizational Culture” has three dimensions: Individualism versus collectivism; Power Distance and Cultural Congruence, which support the construct with coefficients of 0.94, 0.91 and 0.86, respectively. All coefficients have positive values and a high degree of significance, thus being related to organizational culture. Hair *et al.* (2005) [21] state that a construct with a real value of representativeness must present a value greater than 0.5, which is contemplated in the general model presented.

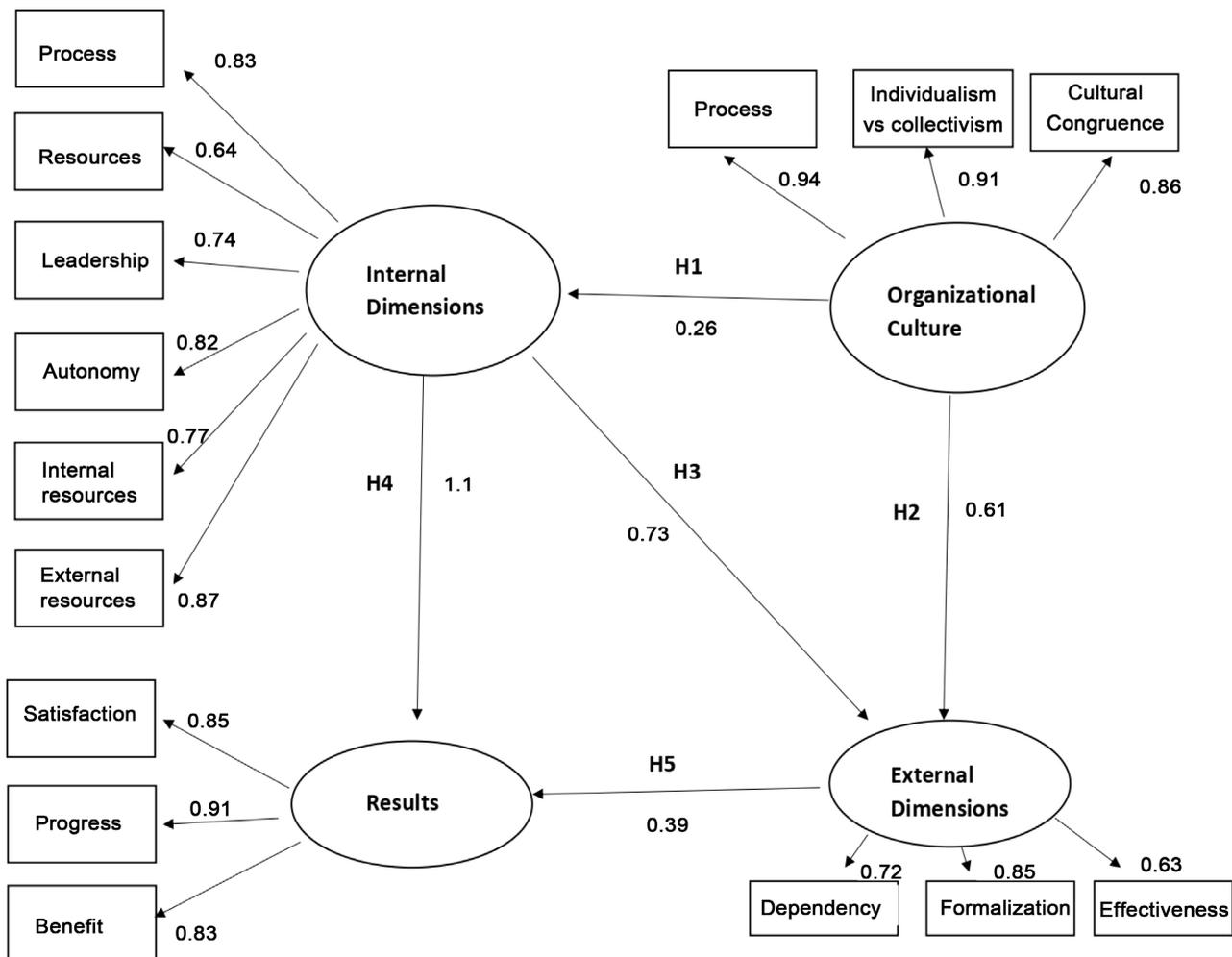


Figure 1. Relationship between organizational culture and the internal dimensions of the innovation group. Source: Research data.

Similarly, the construct “Internal dimensions of innovation” has the dimensions Processes, Resources, Leadership, Autonomy, Internal relationship with the group and External relationship with the group, with values higher than those indicated by Hair *et al.* (2005) [21]. These dimensions present respectively the values of 0.83, 0.64, 0.74, 0.82, 0.77 and 0.87. In this way, it is also possible to affirm that the construct is truly representative.

Organizational culture has a positive relationship with dimensions external to the innovation group.

Hypothesis 2 (H2) aims to confirm the relationship between organizational culture and the external dimensions of the innovation group.

Figure 1 illustrated the dimensions present in the “Organizational Culture” construct: Individualism versus collectivism, power distance and cultural congruence with coefficient values of 0.94, 0.91 and 0.86 respectively. These values allow us to affirm that the organizational culture is being represented by the component dimensions of the construct.

The construct “External dimensions of the innovation group” consists of three other dimensions: Dependence on resources, formalization and effectiveness in the relationship, with coefficients of 0.72, 0.85 and 0.63 respectively. These values allow us to state that the dimensions represent the construct.

Figure 1 also shows the relationship between the construct “Organizational culture” and the construct “External dimensions of the innovation group” by the value of 0.61.

H3: The organizational culture together with the internal dimensions of the innovation group has a positive relationship with the external dimensions of the innovation group.

Hypothesis 3 (H3) aims to confirm that the relationship between organizational culture and the internal dimensions of the innovation group has a positive relationship with the external dimensions of the innovation group.

The joint relationship between the construct “Organizational Culture” and the construct “Internal dimensions of the innovation group” on the construct “External dimensions of the innovation group” is represented in **Figure 1**. A relationship with a coefficient of 0.73 is measured in this relationship.

H4: The organizational culture, together with the internal dimensions of the innovation group, has a positive relationship with the results.

Hypothesis 4 (H4) aims to confirm that the relationship of organizational culture together with the internal dimensions of the innovation group has a positive relationship on the results.

Figure 1 presents the construct “Results” receiving the joint relationship of the constructs “Organizational culture” and “Internal dimensions to the innovation group”. The “Results” construct consists of three dimensions: Results in relation to satisfaction, results that represent progress and results with a focus on benefits. These dimensions have coefficients of 0.85, 0.91 and 0.83 respectively.

The construct “Organizational culture” together with the construct “Internal

dimensions to the innovation group” presents a relation of 28.6% (0.26×1.1) on the results. In this sense, it is possible to perceive how the two constructs positively influence the results in the analyzed company. Machado and Carvalho (2011) [1] state that the perception of the effectiveness of innovation is characteristic of an innovative environment.

Thus, hypothesis 4 (H4) is confirmed, which states that the organizational culture together with the internal dimensions of the innovation group positively influences the results.

H5: The organizational culture, together with the internal and external dimensions of the innovation group, has a positive relationship with the results

Hypothesis 5 (H5) aims to confirm that the relationship between organizational culture and the internal and external dimensions of the innovation group has a positive relationship with the results. Thus, the construct “Organizational culture” influences by 0.26 the construct “Internal dimensions of the innovation group” and by 0.61 the construct “External dimensions of the innovation group”. The set of constructs “Organizational culture” and “External dimensions of the innovation group” influence the construct “Internal dimensions of the innovation group” by a coefficient of 0.24 (-0.39×0.61).

In turn, the set of constructs “Organizational culture”, “Dimensions external to the innovation group”, “Dimensions internal to the innovation group” influence 0.71 ($1.1 - 0.39$) on the construct “Results”.

It is possible to affirm that the organizational culture has an indirect relationship on the results of innovation in 28.6% (0.26×1.1), with the internal dimensions as a mediating variable.

Thus, hypothesis 5 (H5) is confirmed, where the organizational culture, together with the external and internal dimensions of the innovation group, is related to the results.

6. Conclusions

The main objective of this article was to identify whether the influence of organizational culture on the environment is conducive to the development of innovations. The study followed methodological premises initially developed by Van de Ven and Angle (1990) [15], being adapted in Brazil by Machado and Carvalho (2013) and later tested and confirmed in Scarpin (2015) [23] and Depiné (2015) [24].

To test the analysis methodology proposed by these authors, a research was carried out in a branch of a retail supermarket chain in the southern region of Brazil, more specifically in the state of Santa Catarina.

In the present research, questionnaires were applied to all 312 employees of one of the company’s branches. Even though 54 questionnaires had to be discarded, because they were not of sufficient quality during completion, had erasures or were incomplete. The number of questionnaires considered in the present research is significant and according to the verifications carried out and

the bibliography consulted, the result is representative of the branch studied only, and cannot be transferred without further reflection to the other branches of this company.

To achieve the general objective, five specific objectives were proposed, namely: 1) to characterize the organizational culture and the environment; 2) to evaluate the influence of organizational culture dimensions on the internal and external dimensions of the environment in the researched organization; 3) to analyze the influence of organizational culture together with the external dimensions on the internal dimensions in the researched organization; 4) to evaluate the influence of organizational culture together with the internal dimensions on the results of the researched organization; and 5) to verify the adherence of the model of environment conducive to the development of innovations (Machado; Carvalho, 2013) [1] with the inclusion of the organizational culture dimensions of Bates *et al.* (1995) [25].

For the first specific objective, the employees' perception presented an organization that has characteristics that can be classified as a collectivist organization, which is visible when we analyze dimension 11 (D11), with reduced power distance, represented by the analysis of the dimension 12 (D12) and with high cultural congruence, which is measurable in dimension 13 (D13). This set of information states that the organization recognizes and encourages collective work and exchanges between different employees and sectors. There is an incentive for teamwork.

The possibility of direct participation in decision-making is reduced, but it exists, and the processes that guarantee the suggestion of changes or innovation ideas are known and recognized by employees, causing a smaller distance from power. The perception of collective unity identified by the respondents to the questionnaires suggests that there is cultural congruence within this organization. The values of philosophy and loyalty were identified during the analysis, reinforcing the ideal of cultural congruence.

During the research, it was identified that all analyzed dimensions, in what refers to the environment conducive to the development of innovations, are recognized by employees as existing in the organization. These dimensions correspond to results (D1), processes (D2), resources (D3), leadership (D4), autonomy (D5), internal relationship to the innovation group (D6), external relationship to the innovation group (D7), dependence external resources (D8), formalization (D9) and relationship effectiveness (D10).

In this survey, it is possible to conclude that there is a general satisfaction on the part of the employees with regard to individual perceptions and aspects related to the organization. The processes and results are recognized by the employees and are duly recorded and formalized. Resources are available and with limited dependence on them. Leadership and autonomy do not conflict. In addition, internal and external relationships to the innovation group work in ways that improve the development of innovations.

Employees' suggestions are understood and listened to by supervisors, normally being directed towards improving the distribution of materials in the physical space of the store, but also reaching other forms of innovation in a more timely manner. There is some encouragement on the part of the leaders for greater autonomy and for the behavior that prioritizes innovation in the work environment. Even in the event of failures, the warnings respect the need to seek innovations and the risks and failures that are involved in this process. This behavior reveals the healthy relationship during the construction of an innovation process.

The high cultural congruence, low power distance and high level of collectivism allow us to assume that there is room for an environment conducive to the development of innovations. In addition, it is identified that there are leaders who encourage and foster a good relationship between employees and, above all, teamwork. It is understood that there is an influence of organizational culture on the external and internal dimensions of the innovation group in the supermarket.

When the dependencies on external resources and the relationships built between employees from different sectors in the execution of innovation tasks are perceived, the influence of the organizational culture dimensions on the dimensions of the external environment to the innovation group in this company is confirmed.

As for the second specific objective, which aimed to evaluate the influence of organizational culture dimensions on the internal and external dimensions of the environment in the researched organization, the positive influence of the set composed of the organizational culture dimensions with the internal and external dimensions on the results was verified. The third specific objective, which analyzes the influence of organizational culture together with the external dimensions on the internal dimensions in the researched organization, confirmed the positive influence between these constructs.

The fourth specific objective sought to assess the influence of organizational culture together with the internal dimensions on the results of the researched organization. Like the others, this objective confirmed the positive influence of the set formed by the internal dimensions and the organizational culture on the results in this organization.

The influence of organizational culture and the external and internal dimensions of the innovation group on the results was evident when the diagram constructed in this research was analyzed. Thus, the first four objectives were achieved.

Considering the set of conclusions presented in the previous paragraphs, it may be a suggestion to the management of the researched company to prepare adequate training material and offer professional training aimed at its employees, especially on innovation and organizational culture, as well as the positive impact on the organization's performance. With regard to the influences observed in the constructs, it is suggested to encourage greater personal initiative

in the decision-making of employees, aiming at a better environment conducive to the development of innovations in the organization.

The fifth specific objective referred to the verification of the adherence of the model proposed by Machado and Carvalho (2011) in this organization. The replication of the model by Scarpin (2012), Depiné (2012), showed adherence to the objective. In the researched organization, through structural equation modeling (SEM), it was found that the model also has adherence in a company in the service sector, represented here by a unit of a retail supermarket chain in southern Brazil.

At the end of this research and the analysis of the results concluded, it is possible to affirm that the branch of this retail network that was the target of the research has a culture with an environment conducive to the development of innovations. The culture of this organization is constituted by high cultural congruence, low power distance and being a collectivist organization. There is synergy between different sectors and different employees in the search for a greater and common good, keeping the company's existence and revenue in healthy conditions.

Finally, it is recommended the development of other exploratory studies based on the model used in this research, ideally in companies in other geographic regions, aiming at the possibility of a future comparative analysis. Furthermore, studies in other companies in the service sector, in addition to research in public agencies and non-profit institutions, can enrich perceptions about the effectiveness of the model.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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