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Teleworking, a triangle of perceptions: Managers, workers and family members

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Abstract

Teleworking requires changes in the previous practices associated with its actors: managers, workers and family members. Not being able to assimilate these changes can affect the satisfaction of each one and generate a set of unfavorable effects in the different roles. In this research, through a survey applied to 321 participants from nine Ecuadorian provinces, assuming an infinite population and ensuring a researcher error of less than 10%, the level of satisfaction of the three roles analyzed was characterized with respect to a group of associated variables. As a result, it can be argued that although telework generates benefits for workers and employers, it requires changes in management methods and provokes different attitudes in the family environment. Regarding managers, although they recognize teleworking as viable, they perceive that their traditional control methods require changes to assume new practices and must be based on higher levels of trust and the development of a results-oriented function. With respect to workers and their families, they recognize that teleworking gives them a set of facilities, although it could affect family relationships and become a source of stress that affects health.

Keywords: Teleworking; managers; workers; family.

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Teletrabajo, un triángulo de percepciones: Directivos, trabajadores y familiares

Resumen

El teletrabajo requiere cambios en las prácticas anteriores asociadas a sus actores: gerentes, trabajadores y miembros de la familia. No poder asimilar estos cambios puede afectar la satisfacción de cada uno y generar un conjunto de efectos desfavorables en los diferentes roles. En esta investigación, a través de una encuesta aplicada a 321 participantes de nueve provincias ecuatorianas, asumiendo una población infinita v asegurando un error del investigador menor al 10%, se caracterizó el nivel de satisfacción de los tres roles analizados respecto a un grupo de variables asociadas. Como resultado. se puede argumentar que el teletrabajo, si bien genera beneficios para trabajadores v empleadores, exige cambios en los métodos de gestión y provoca actitudes diferentes en el entorno familiar. Los directivos, aunque reconocen viable el teletrabajo, perciben que sus métodos tradicionales de control exigen cambios para asumir nuevas prácticas y deben basarse en mayores niveles de confianza y el desarrollo de la función orientada a resultados. Por su parte, tanto los trabajadores como sus familias reconocen que el teletrabajo les da un conjunto de facilidades, aunque podría afectar las relaciones familiares y convertirse en una fuente de estrés que afecta la salud.

Palabras clave: Teletrabajo; gerentes; trabajadores; familia.

1. Introduction

Throughout history, man alternated his position regarding group work and the way of carrying it out. From a primitive stage, he understood that the chances of success in facing the great beasts and surviving were greater if he did it in groups and united. During the slavery era as a form of social organization, the slave as a productive force continued mostly working in groups. With the rise of feudalism, for the first time, man began to work individually, the serfs became relatively independent farmers from whose effort

they paid tribute. With the accelerated development of means production, the large factories arrive and man returns to his high levels of concentration as a productive force.

The appearance of offices as nuclei of collective work can be due to multiple causes. Its emergence not only responds to the lack of any means of work on the part of the worker, but also administrative conditions, among these: facilitating the access of clients both from a spatial and temporal point of view, communication was more fluid and generated in employers, a higher level of control by being able to establish methods of direct control over the worker (Chávez et al, 2021; García-Madurga et al, 2021).

Until 1925, the above conditions seemed to be the fundamental reasons to justify concentrated collective work as a method for generating productivity. For this date, Elton Mayo, with the aim of analyzing the influence of working conditions on productivity, began the Hawtorne experiment (Hart, 2012); As a result it was found that not only working conditions influence productivity, but human interactions were also an impact factor. Years later, other psychologists continued to delve into the relationship between productivity and employee important motivation and theories emerged such as Abraham Maslow's Classification Needs Pvramid David McClelland's Needs Classification Proposal, the latter proposes existence of three groups of people depending on the type of dominant need: those oriented towards achievement, power or affiliation to a group (Elizalde-Hevia et al, 2006; Hart, 2012; Araya-Castillo & Pedreros-Gajardo, 2013).

This form of concentrated organization originated, in workers in particular and in society in general habits that conditioned important aspects such as family and interpersonal relationships. The life system of each individual, his family and interpersonal relationships with other members of society were organized from the work schedules.

Some professions such as journalists or writers always had the possibility of working from the tranquility of their home, although sometimes they attended the same workplace. With the development of telecommunications, more and more are resorting to it voluntarily or forcibly due to extreme conditions (the Covid-19 pandemic).

The COVID-19 pandemic has led to a step change in the prevalence of teleworking across many businesses and employers. Is this increase only temporary or will it last in the future? The answer is likely to depend on the balance between the pros and cons of teleworking for both workers and employers. While more widespread telework has the potential to increase productivity, improve work-life balance and reduce emissions, its overall impact is ambiguous (García-Rubio et al, 2021; Ramírez-Velásquez et al, 2021).

These findings are broadly in line with academic studies in several other countries. Barrero et al, (2020) found that 85% of teleworkers in the United States were at least as efficient working at home during the COVID-19 pandemic as they had been working on employer premises beforehand. In the United Kingdom, 71% of businesses surveyed said that homeworking during the COVID-19 pandemic had no detrimental impact on productivity and, within those, 33% said productivity had improved (Gascoigne, 2020).

The truth is that with the extensive development of technologies since the end of the 20th century, more and more companies are joining the teleworking modality. The application of telework is reported mainly in highly developed countries (Bae & Kim, 2016; Elldér, 2020; Salgueiro et al, 2017) although it cannot be argued that it is unique to these countries, in countries with a lower degree of development, its use is also manifested (Sapién-Aguilar et al, 2016; Tintin et al. 2015; Roncal, 2021).

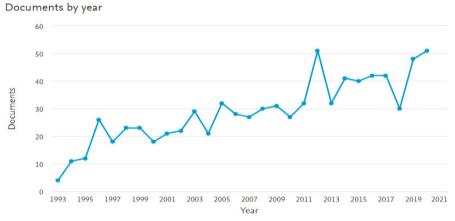
In this new scenario, several questions arise: How does the new organizational form of telework production affect the levels of workers satisfaction, managers and family

members? And, what relationship does the satisfaction of those involved have with the type of predominant need in the worker and the type of work that is carried out? Evaluating the possible answers to the questions raised is the objective that drives this research.

2. Evolution of Research on Teleworking

As early as 1984, the first studies on teleworking were reported (Pratt, 1984). From then to the present, the trend has been to increase the number of investigations on the subject and consequently the volume of publications, as reflected in graph 1.

Graph 1 Publications on Teleworking in Scopus



Note: Own elaboration.

In Scopus a total of 829 publications is reported, and with a growing trend from 1993 to the present, with more prolific periods associated with external behaviors such as pandemics or certain technological advances or changes in public policies or business administration (Belzunegui-Eraso & Erro-Garcés, 2020; Grange et al, 2020).

Currently there are multiple definitions of teleworking, among which are:

- "Use information and communication technologies (ICT) to carry out work on the move, at home, or in other places outside the workplace" (Sewell & Taskin, 2015:1509).
- "It is an alternative work arrangement that allows employees, at least during part of their working hours, to use information and communication technologies to carry out tasks in places other than the work spaces that normally take place" (Biron &

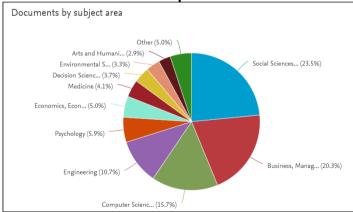
van Veldhoven, 2016:3).

- "Any form of work organization in which the tasks, that could have been carried out in the employer's own facilities, are carried out regularly and voluntarily far from these facilities, through the use of information technologies, as part of a new work contract or like an amendment of the contract initially signed" (Van Wart et al, 2019: 56).
- "An alternative work arrangement in which employees perform tasks in other locations than normally performed in a main or central

workplace, at least during some part of their work hours, using electronic means to interact with others on and off the organization" (Groen et al, 2018:2).

Due to its nature and scope, which emerges from the definitions themselves, teleworking as an object of study is approached from different scientific disciplines (see graph 2), but there is a predominance of research in social sciences, administration and of course in the computer science, for great relationship they keep with this study object (Sukmana et al, 2020).

Graph 2
Distribution of publications on telework in Scopus by scientific discipline



Note: Own elaboration.

The social sciences address the issue from multiple perspectives, such as: gender differences (Lohman, 2015), treatment and incidence of disabilities (Takeuchi et al, 2020), age (Arvola & Kristjuhan, 2015), the impact on society such as the use of public transport (Lachapelle et al, 2018), and the environmental influence (Muto et al, 2019).

There are several themes that constitute common points between the

social sciences as a generality and the administrative sciences as a particularity and that are the object of study in relation to teleworking. Among these, the following stand out: the incidence of teleworking in family relationships (Abendroth & Diewald, 2019; Delanoeije et al, 2019; Vayre, 2019), workload and its ability to generate stress in individuals (Anderson et al, 2015), modifications in group work practices (Ruiller et al. 2019).

Teleworking as an administrative practice has the potential to generate multiple benefits that are also the object of analysis, such as improving productivity or job satisfaction (Nilles, 1982). Despite the recognition of these benefits by some researchers, multiple questions remain that do not reach a consensus and which constitute concerns on the part of professionals and academics who practice administration, among these we can mention: The relationship of personal qualities and potential for teleworking (Elldér, 2019), the required competences (Sapién-Aquilar et al. 2016), the ways of exercising control in teleworking (Peters et al., 2016), leadership peculiarities under teleworking conditions (Mayo et al, 2016; Van Wart et al, 2019), the stimulation mechanisms (Ahmed et al. 2020: Hoornweg et al. 2016).

One of the major concerns that arises in relation to the issue has to do with how to exercise control under this

new organizational modality. managers are resistant to taking the new approach, they perceive the loss of control. In relation to this approach. multiple investigations are reported (Arso et al. 2018; Biron & van Veldhoven, 2016; Sewell & Taskin, 2015; Silva-C et al. 2019).

The levels of application telework are diverse, they are not exclusive for large companies but it is perfectly applicable in the conditions of SMEs (Castellano et al, 2017; Vrchota et al, 2019). Similarly, although, it is not applicable to any type of organization, its use is reported in different specialties: computer science (De Melo, 2020), creative and knowledge organizations (Hazak, 2018), nursing (van den Broek, 2017), intelligence organizations (Gioe et al, 2020), among others.

3. Methodology

For the development investigation, the steps that are described below were carried out.

Design or selection of the the instruments to collect design of **information:** For the the instrument. the variables were accounted for, which are summarized in table 1, to measure in each study group.

Table 1 Variables to be measured by study group

Perception	Variable	Managers	Wor- kers	Family
Managers	Organizational economy			
	Organizational culture			
	Work planning			
	Work control			
	Organizational climate			
	Communication about work			
	Relationship with colleagues			
	Working conditions: Internet, digital skills, and accessories			
	Work autonomy			
Workers and	Time management			
Managers	Work feedback			
	Achievement of objectives			
	Timeliness of results			
	Effectiveness of results			
	Teleworking time			
	Job satisfaction			
	Perception of stress level			
	Perception of physical fatigue			
	Perception of security			
Worker and	Family relationship in general			
family	Relationship with children			
	Time for the education of the children			
	Family economy			
	Family time management			
Workers	Number of working hours per day			

In addition, other variables of the diversity category were considered, such as: age, sex, profession, level of training, number of family members at home, number of minor children living at

home, time spent teleworking and type of relationship of the family member who answered the survey. In the survey, a Likert scale with five categories was used.

The compilation of information was oriented to three different target audiences: workers, family members of workers and directors associated with teleworking. The survey presented by Robbins & Judge (2009) was applied to managers and workers to determine the need for a greater impact on job motivation.

Population and sample definition: Since there was no updated information on the number of people who were teleworking at the time of the study, and knowing that with the conditions of COVID-19 this type of work increased significantly. the population under study was considered as the set of workers who work under this modality considering their size greater than 100 000 and therefore infinite. The starting point was the selection of the sample by the Snowball method. initially selecting a total of 30 experts who had to select another 4 experts to apply the surveys. Finally, surveys of 128 workers, 81

managers (or people who develop management functions) and 112 family members were received. With the sample size achieved through expression 1 for infinite populations and with a confidence level of 95%, the magnitude of the sampling error was determined. In the three sample sizes, the sampling error was less than or equal to 10%.

$$e^{-\sqrt[2]{\frac{k^2 * p * q}{n}}} \qquad \text{(evacuation 1)}$$

The tables 2 and 3 characterize the composition of the sample by sex, age, provinces and professions. As can be seen, a similar distribution was achieved in terms of ages and sexes. Although developing provinces predominate in the study, there is a representation of provinces with different levels of development. In addition, there is a predominance of teaching activities in general and computer work.

Table 2
Sample characterization

Dimension	Variables	Sample	Dimension	Variables	Sample	
Provinces	Los Ríos	13	- Sex	Men	147	
	Manabí	15	- Sex	Women	174	
	Guayas	95		Less than 30	38	
	Esmeraldas	9	Age	From 30 to 60	237	
	Santa Elena	11	-	Over 60	46	
	Loja	13	Educational Laura	College Graduate	207	
	Santo Domingo	17	- Educational Level	Non-university	114	
	Azuay	16	T		321	
	Pichincha	132	- Total			

Note: Own elaboration.

Table 3
The sample by occupations

Occupations	Workers	Manag- ers	Family	Total
Editors or referees	7	3		10
University professors	27	26		53
Non-university professors	32	31	23	86
Office procedures	18	5	9	32
Consultants	8	3		11
Accountants	9	3	1	13
Technical designers	11	5		16
Computer technician	10	5	3	18
Salesman	6		21	27
Craftsman			9	9
Domestic work			46	46
Total	128	81	112	321

Design of the processing methods: All the surveys were tabulated and processed using the IBM SPSS 23. Each of the variables is processed by using the mean as a statistic of central tendency. When the problem of comparing more than two samples arises to know if they come from the same population, or comparing if there are differences between the measures of central tendency of more than two populations, and the assumption of normality and equality of variances is not justified it is convenient to apply the Kruskal - Wallis test. This test was used to perform the analysis of comparison of means between the corresponding variables in each analysis group and their relationship as a function of variables of the diversity category. The null hypothesis for the Kruskal-Wallis test is that there is no difference between the variables in a category (μ 1 = μ 2 =... = Mn), while the alternative hypothesis is that there is a difference between the variables in a category (μ i $\neq \mu$ j).

The presence degree of each function was determined from the analysis of the items evaluated for their characterization. In addition, a χ^2 hypothesis test is performed to verify if there is an association between the level of satisfaction experienced and

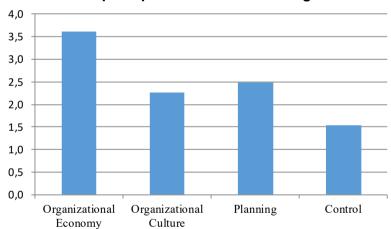
the dominant need in managers and workers. This indicator works with a known distribution to determine if there are significant differences between the medians of the variables analyzed.

4. Perceptions of Managers, Workers and Family Members about Teleworking

The study began by analyzing the managers perception in relation to their satisfaction level with the fulfillment of administration functions and the

performance of the organization in general. As can be seen (graph 3), in the opinion of managers, the organization economy is relatively benefited because basic service expenses are reduced and complementary services such as cleaning and security are provided, if it is a long-term decision, savings can be made significant in infrastructure and furniture. However, according to managers' criteria, planning and control functions are affected by teleworking as well as the promotion of a strong organizational culture.

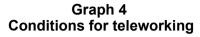
Graph 3
Self-perception behavior of managers

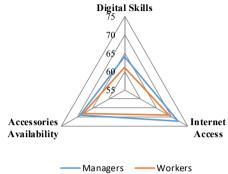


Note: Own elaboration.

Graph 4 summarizes the basic conditions that leaders and workers propose to have for teleworking. As can be observed in the figure, managers show a slight improvement compared to workers in their general conditions for

teleworking: they have better access to the Internet, greater mastery of digital skills and availability of accessories (printers, scanners, cameras, microphones).





Graph 5 shows the evaluation of the rest of the variables studied in a common way for managers and workers. It is verified that the workers are more satisfied than the managers in most of the evaluations and only in the feedback on their work show lower levels of

satisfaction than those of the managers. Workers are fully satisfied with their performance, reaching the highest evaluation regarding the achievement of the objectives in quantity, quality and timeliness.

Graph 5
Perceptions related to the work of managers and workers

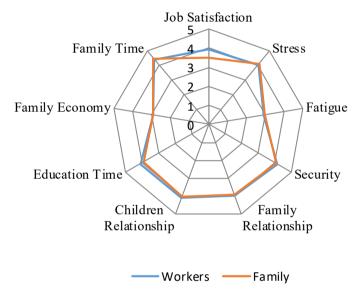


Note: Own elaboration.

When comparing the perception of managers with respect to workers (graph 6), it is observed that in general there are levels of coincidence in the satisfaction of

most of the variables evaluated, with the exception of general satisfaction where it is slightly higher in the case of workers in relation to family members.

Graph 6
Work-related perceptions of family members and workers



Note: Own elaboration.

Graph 7 and Table 4 summarize the behavior by sex, age and occupation. In all cases the satisfaction of workers is greater than that of managers and family members. Regarding sex: the male shows a level of satisfaction somewhat higher than the female. Similarly, those under 30 years of age show a level of

satisfaction that is relatively higher than the other age groups. With regard to professions, variations are observed among themselves and in the behavior of satisfaction depending on the role they occupy (worker, manager or family member).

Graph 7
Behavior of satisfaction with teleworking by occupation

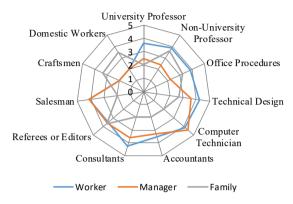


Table 4
Behavior of satisfaction with teleworking by sex and age

Dimension	Variables	Categories	Percentage	
		Workers	4.47	
	Men	Managers	3.02	
Sex		Family	4.05	
Sex		Workers	3.38	
	Women	Managers	2.35	
		Family	3.00	
	Less than 30	Workers	4.38	
		Managers	3.85	
		Family	3.36	
		Workers	3.82	
Age	From 30 to 60	Managers	2.58	
		Family	3.46	
	Over 60	Workers	3,66	
		Managers	2.52	
		Family	3.72	

Note: Own elaboration.

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To verify whether the differences in the levels of satisfaction experienced as a function of the variables of the diversity categories were statistically significant, the Kruskal-Wallis test was performed. As can be seen, in Table 5, the variables

sex and the categories analyzed (worker, managers and family members) are the only ones where the levels of satisfaction achieved show a relationship with the independent variable.

Table 5 Summary of the hypothesis test

	Null hypothesis	Test	Sig.	Decision
1	Category distribution is the same among Satisfaction categories	Kruskal-Wallis test of independent samples	0.000	Reject the null hypothesis
2	Sex distribution is the same among the Satisfaction categories	Kruskal-Wallis test of independent samples	0.000	Reject the null hypothesis
3	Occupation distribution is the same among the Satisfaction categories	Kruskal-Wallis test of independent samples	0.074	Retain the null hypothesis
4	Province distribution is the same among the Satisfaction categories	Kruskal-Wallis test of independent samples	0.968	Retain the null hypothesis
5	Age distribution is the same among the Satisfaction categories	Kruskal-Wallis test of independent samples	0.529	Retain the null hypothesis
6	The distribution of Training is the same among the Satisfaction categories	Kruskal-Wallis test of independent samples	0.161	Retain the null hypothesis
1	Digital Skills distribution is the same among the Satisfaction categories	Kruskal-Wallis test of independent samples	0.828	Retain the null hypothesis
2	Internet distribution is the same among Satisfaction categories	Kruskal-Wallis test of independent samples	0.350	Retain the null hypothesis
2	Accessories distribution is the same among the Satisfaction categories	Kruskal-Wallis test of independent samples	0.180	Retain the null hypothesis
1	Digital Skills distribution is the same among the Time Working categories	Kruskal-Wallis test of independent samples	0.000	Reject the null hypothesis
2	Internet distribution is the same between the Time working categories	Kruskal-Wallis test of independent samples	0.000	Reject the null hypothesis
3	Accessories distribution is the same between the Time working categories	Kruskal-Wallis test of independent samples	0.000	Reject the null hypothesis

Note: Asymptotic significances are shown. The significance level is 0.05

Similarly. hypothesis test analysis was carried out to evaluate the relationship between the working conditions and the satisfaction level experienced, as well as the relationship between the working conditions and the time that workers and managers took in exercising this practice, assuming that an increase in working time should contribute to the improvement of working conditions. According to the results. is no statistically significant relationship between working conditions and perceived satisfaction; on the other hand, there is a statistically significant relationship between the time teleworking is performed and the working conditions created.

To delve into the causes between the differences between the categories (worker and manager), the relationship between dominant needs and satisfaction with teleworking was analyzed through the χ^2 test. The results are shown in graph 8 and table 6. There is a predominance of power needs in managers, while in workers the needs of affiliation and self-realization predominate, with a greater presence of the latter.

Graph 8
Percentages of the dominant need in workers and managers



Note: Own elaboration.

The result of the calculated statistic is shown in Table 6. As shown in Table 6, there is a statistically significant association between the predominant

need and the level of satisfaction perceived by workers and managers, so it can be concluded that these variables are not independent.

Table 6 Tests of χ^2

	Value	df	Asymptotic significance (bilateral)
Pearson's Chi-square	31.509ª	8	0.000
Likelihood ratio	37.627	8	0.000
Linear by linear association	3.420	1	0.064
Number of valid cases	321		

The levels of satisfaction reported general, by both workers and managers, correspond to the results found by previous research (Biron & van Veldhoven, 2016; Sewell & Taskin, 2015).

The perception of teleworking benefits, both for managers and for workers and family members, as well as the recognition of the influence of teleworking practices in the family environment have been analyzed by several authors (Biron & van Veldhoven, 2016; Van Wart et al, 2019). Among the obstacles that were reported as causes that affect satisfaction, especially in the family group, is the increase in working time at home, affecting family time planning and modifying the organizational conditions of homes.

Not all workers have infrastructure and internet access conditions to carry out telework without affecting the rest of the cohabitants. In the research, it was observed that as workers increased their teleworking time, their working conditions improved and consequently it could be expected that this implies a lesser impact on family satisfaction.

This research validated the existence of differences in workers and managers in the conditions to apply telework in relation to internet access, mastery of digital skills and the availability of complementary computer accessories. However, these conditions were not found to significantly influence the levels of satisfaction experienced by both groups, which did not allow corroborating the results of previous investigations (Sewell & Taskin, 2015).

The recognition of the feeling of losing control with the teleworking application by managers, who no longer have direct supervision mechanisms over workers and must resort to the development of confidence (Kaplan et al. 2018) and exercise control centered on the results indicators (Groen et al. 2018), to a certain extent, they were corroborated in the research, when observing how managers, despite recognizing that teleworking originates benefits for the organization, perceive the control function as affected and recognize other effects related to organizational culture, climate, group relationships and communication. No studies were found that constituted previous antecedents of analysis of the predominant need in motivation and its influence on satisfaction with control in teleworking.

Regarding the influence of age

on the satisfaction experienced in the practice of teleworking, although it was observed that the younger age groups generally had a higher level of satisfaction with teleworking, the hypothesis tests did not show that the differences observed were statistically significant. Results that correspond to the findings raised by Arvola et al. (2017).

Similarly, it was observed that in the case of women the satisfaction is lower than that experienced by men. These results seem to differ from those reported by Galvez et al, (2020), but this is not the case, since the authors state that teleworking is perceived as an opportunity for married women, who see an improvement in the opportunity to access to work. Meanwhile, in this research, women are reporting that it is more difficult for them to combine teleworking at home with domestic activities, affecting their level of concentration and the available time to assume the burden of non-domestic work.

5. Conclusions

As a result of this research, it can be argued that teleworking, while generating benefits for workers and employers, demands changes in management methods and causes different attitudes in the family environment. Managers, recognize teleworking as viable, perceive that their traditional control methods demand changes to assume new practices and must be based on higher levels of trust and the development of the results-oriented function.

With respect to workers and their families recognize that teleworking gives them a group of facilities in which their level of autonomy in relation to the administration of their family and work

time stands out, but it must be assumed with caution and measure so as not to affect family relationships and become a source of stress that affects health.

In correspondence with these results, it is clear that management assume teleworking modality that expands the performance potential and extends the boundaries of organizations while establishing new models of organizational design. This new modality imposes changes in the traditional functions of the administration and in relevant aspects that must always be considered by managers when designing and applying their work strategies; especially in aspects related to culture, communication and group work, among other aspects. Similarly, it is advisable to evaluate the working conditions of workers in their home and the way in which they impact their family relationships and their psychological attitude.

Starting from the results of the research and based on the own conception of this, a group of aspects emerged that could be the center of other investigations aimed at deepening the changes that occur in the work environment and organizational culture with the telework application. Similarly, new ways of exercising the leadership role in teleworking conditions could be deepened.

It is still necessary to continue delving into the possible relationship amond age. masterv of skills and satisfaction experienced with teleworking. It would also be appropriated to continue analyzing the relationship between gender and telework considering multiple segments of perceptions: women who work outside the home and start teleworking, women who only practice domestic work and

assume another additional burden, as well as the composition of household members and their relationship with teleworking or other modalities.

It is also advisable to studying the differences between professions, regions and types of activity. The results of this research in this sense are not conclusive because they show a small sample size for each analysis segment, so in this sense it is considered exploratory research

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