

# Satisfaction of Virtual Interaction Platforms and its Effect on Work Performance in the Teleworking Modality

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*Abstract– The COVID19 pandemic that began at the end of 2019 disrupted the normal course of activities worldwide. The restrictions produced as a contingency measure to stop contagion forced millions of companies around the world to change their work methodologies to a virtual mode, not in person, to continue with their activities. In Ecuador, there is little information that describes the satisfaction with the use of virtual communication tools used for work from home and its influence on the performance of work activities, therefore, in the present work the indicators were analyzed to establish the degree of relationship between these variables by collecting data with the preparation of surveys and the execution of a structural equation model. The results showed that workers under this modality have a good degree of acceptance in the use of virtual tools for communication within the workplace, even though they showed some difficulties and limitations under this modality. In addition, the workers stated that they had a good perception of their work performance under this modality.*

KEYWORDS: JOB PERFORMANCE, TELEWORKING, INTERACTION TOOLS

## I. INTRODUCTION

Since 2020, worldwide a considerable number of companies, from multinationals to small businesses, have been significantly affected by the global pandemic, called COVID - 19. This pandemic was caused by the SARS-CoV2 virus. It appeared at the end of 2019 and, in early February, due to the high number of cases and deaths, it caused a total quarantine and confinement. Some companies closed their doors permanently due to the large losses they registered due to the drop in sales. However, the vast majority have remained afloat, despite mobility restrictions. From this arises the need to adopt teleworking as a temporary modality so as not to cease their commercial activities and thus continue with their productivity.

In the United States, in the 70s, during an oil crisis, different ideas arose to optimize resources [9]. Among them, the idea of bringing work to the worker and not the other way around was born, creating the concept of teleworking. For this reason, it is stated that teleworking already existed many years ago, but that it was a rare modality, especially in Latin America. This alternative became common throughout the quarantine. During this time, workers carried out their work

activities from their homes. For this, the need arose to use virtual interaction platforms, such as those that were already used in the face-to-face modality, as well as communication tools for work meetings with a considerable group of people.

Given this problem, the use of other platforms designed for this need was adopted. The most used platforms are Teams with 75 million users, Hangouts with 200 million and Zoom with 300 million users [3]. This last platform grew 50% in less than a month.

Virtual platforms are sets of applications programmed to satisfy some communication need from a computer or smart device, for which it must have an internet connection. There are different types of virtual platforms: educational, learning, commercial, social, business and work, among others. These applications allow remote video conferencing, which has been part of today's business culture for many years. Additionally, they have provided a robust alternative to face-to-face meetings, beginning in the 1990s, with the advent of web-based instant messaging [11]. Virtual interaction platforms are key to the development of work activities; therefore, it is important to determine the degree of satisfaction that workers have with the use of these platforms in the telework mode and determine if communication is feasible in use of these tools. In addition, it is proposed to determine the effect that the satisfaction of these tools produces on the worker's work performance in the teleworking modality and if there is a relationship between them.

Employee performance has always been considered the cornerstone to develop the effectiveness and success of an organization; for this reason, there is currently total interest for human resource managers in aspects that allow not only to measure it but also to improve it. In this sense, performance is those actions or behaviors observed in employees that are relevant to the organization's objectives and can be measured in terms of the competencies of each individual and their level of contribution to the company. This performance may or may not be successful, depending on a set of characteristics that are often manifested through behavior. In this regard, Robbins [13] links performance with the ability to coordinate and organize activities that, when integrated, model the behavior of the people involved in the production process.

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The teleworking modality generates high productivity, provided that in the assigned activities there is total responsibility, trust and transparency between the parties involved, in this way teleworking is efficient [5]. Although at present many of the companies have not managed to increase their productivity due to the financial crisis generated by the Covid-19 health crisis, but this modality has helped to maintain the jobs of many people, mainly in the administrative and accounting areas, financial, among others, and consequently this helps to follow the operation and productivity of companies.

There is no taxonomy regarding the impact of the tools used in teleworking on the results of the organization or the performance of the collaborator. This is due to the variety of activities carried out [1].

For this study, the scale proposed by Smith, Patmos and Pitts [15] was used, which assesses satisfaction with the use of virtual interaction tools. By means of this scale, four aspects related to: (a) freedom of expression are analyzed; (b) message understanding; (c) general satisfaction with communication with colleagues and (d) fluency of communication.

Through an exploratory study, the most common means of virtual communication in teleworking in the work context of Guayaquil-Ecuador were identified: (a) email; (b) instant messaging; (c) voice call and (d) video conference. Therefore, it was decided to simultaneously evaluate the results of these tools since they have been the most used, jointly, during teleworking activities for Guayaquil residents.

## II. MATERIALS AND METHODS

This study was conducted in the city of Guayaquil through a virtual survey conducted on the Encuesta Fácil web platform to obtain better data processing and subsequent analysis. Workers who had been under teleworking modality were surveyed to determine 3 aspects: the frequency of use of different platforms of the WhatsApp, Zoom, Teams and Skype platforms; the level of satisfaction classified in 3 variables: interaction by email, voice calls and videoconferences; and the self-perception of the virtual worker regarding his job performance.

This research is characterized by being of a correlational type, since it aims to evaluate the relationships that exist between the variables, in this case, satisfaction with virtual interaction platforms and their effect on job performance in the telework mode. To achieve the proposed objectives, work will be done based on a non-experimental, transactional-correlational research design, with the purpose of studying the proposed variables, without deliberate manipulation of them, and thus, knowing and describing their relationship through of data collection [16].

In this work the convenience sampling technique was carried out, which is a field investigation that implies the understanding of some social situations that requires the

collaboration of people who are part of the group to be studied, in this case, people who have worked in the telework modality [12]. The survey was disseminated through digital media such as social networks and email until the sampling frame of 384 surveys was completed. The data obtained were processed with the SmartPLS version 3 software in which through structural equations used as an estimation means to contrast the hypotheses and thus the relationship of the virtual interaction platforms with job performance was established.

An analysis of the data with descriptive statistics was used, using the Microsoft Excel 2016 program where the data obtained was evaluated and a classification was made to facilitate the analysis, the outliers and missing values were reviewed, then the database was cleaned. The age of the participants was not a significant variable, therefore, only the age of the respondents was averaged, the gender variable was analyzed to determine the scope of the survey in men and women and in the sector in which they work and the position they occupy. A comparison was made between the variable's salary range and level of instruction to establish the level of income for each level of instruction, another variable that was analyzed is the type of working day and the percentage of telework that is carried out.

The significance of the study variables used as indicators was established by conducting a confirmatory factor analysis and estimating a structural equation model. Through the Smart PLS 3 programs, the variables were compared through the structural equations model to determine the relationships exposed in the objectives that are satisfaction in the use of virtual interaction platforms, the most widely used platforms and self-perception of job performance in teleworking modality. In addition, to identify through the data collected which are the variables that influence satisfaction with the use of virtual interaction platforms in the telework modality.

## III. RESULTS

The survey was disseminated through social networks to 416 people, there was a response rate of 63.94%, where 66.54% were women and 33.46% men with the average age of 40 years. Next, the results are presented with data from the survey carried out and its qualitative analysis with the route diagram, in which the correlations of the variables that were analyzed in this study are marked. 28.46% work in assistant or auxiliary positions, 14.23% are dedicated to sales or field work, 9.23% are analyst or specialist, 21.54% in other positions, while 6.15% are in managerial positions, management and coordination, and these positions are occupied by 3.84% of respondents who have a university degree or a postgraduate degree. In addition, in the results we could observe 20.38% of those surveyed are dedicated to teaching or research.

The main problems that workers face when carrying out their work activities in the teleworking modality are internet connectivity with 24.81% and distractions that occur at home with 21.43%, another challenge faced by the worker is maintaining a regular working hour with 18.42% and only 0.75% of respondents indicate that they do not present difficulty in this modality. People who work under the teleworking modality agree with this modality since they can express themselves freely and explore their capacities.

Four types of virtual interaction platforms were determined, which were: email where Outlook, Gmail and corporate emails are located, instant messaging that includes WhatsApp, Telegram, Teams, Skype, voice calls in which we have the same as in messaging snapshot, but adding Zoom and finally video conferencing with Teams, Skype and Zoom applications through an exploratory study. As a result, it is observed that the tool most used by workers is email, followed by instant messaging, while other tools such as voice calls and video conferencing are ranked 3rd and last respectively.

All respondents show agreement in the use of virtual interaction platforms, in the interaction through email 7.08% are partially dissatisfied with these interaction platforms. In voice calls, the least dissatisfaction was observed with 3.10%, followed by instant messaging with 4.20%. It could also be observed that less than 6% are dissatisfied with video conferences. There are no significant values in the degree of dissatisfaction of the virtual interaction platforms, that is, around 90% of respondents if they are satisfied with the use of these. In addition, 64.60% of workers in the virtual modality do not have problems in their work schedules, as well as that they can organize their work time well in 62.83% and that 65.04% finish work assignments on time.

Through the structural equation model, a path diagram was made in the Smart PLS program. The relationship between the 4 types of virtual interaction with respect to job performance was studied as indicated in figure 3.7, in which there are two types of communication: synchronous and asynchronous. Asynchronous communication tools do not require a simultaneous response in this classification we have email and instant messaging, while synchronous communication tools require greater communication in this, we have voice calls and videoconferences.

The diagram in figure 1 shows that there are significant values in each of the indicators since they show Cron Bach Alpha values greater than 0.7, therefore, there is a greater involvement in each of the indicators. In addition, it is also shown that there is a relationship between satisfaction in email interaction and job performance because it has a significant effect since its load is 0.316.

Indicators A1, A2, A3 and A4 are found from the perspective where the teleworker determined through them, how efficient a tool is to feel satisfied or not, being:

A1: When I communicate through this medium, I feel that I can express myself freely.

A2: When I communicate by this means, the other person understood what I said.

A3: I am satisfied with the conversation in this way with my co-workers.

A4: Conversation with colleagues flows smoothly through this medium.

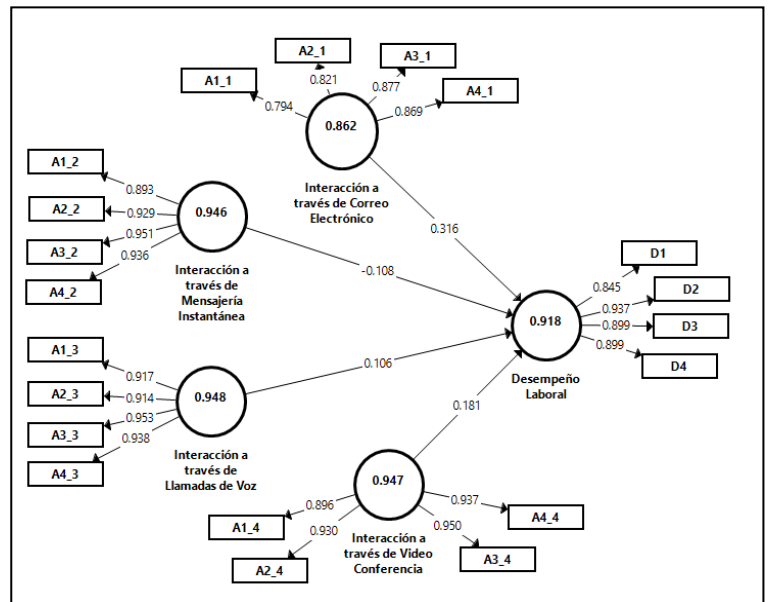


Fig. 1 Path diagram

The indicators D1, D2, D3 and D4, represented the self-perception that the teleworker has about them where:

D1: Comply with the established schedules such as in the face-to-face session.

D2: He manages to finish the work assignments sent to me through virtual platforms on time.

D3: Connects punctually to meetings that are held through virtual platforms.

D4: You can organize your working time optimally.

The table 1 shows the loads of each indicator, with voice calls being the interaction tool with the greatest satisfaction in fluency, conversation, and freedom of communication. Video conferences are defined as the most satisfying interaction tool for communication with the recipient. Instant messaging is the most satisfying interaction tool for conversations with co-workers.

TABLE I  
INDICATOR LOADS

	Email	Instant messaging	Voice calls	Video conferences
When I communicate through this medium, I feel that I can express myself freely.	0.794	0.893	0.917	0.896
When I communicate this way, the other person understood what I said.	0.821	0.929	0.914	0.930
I am satisfied with the conversation through this medium with my co-workers.	0.877	0.951	0.953	0.950
Conversation with colleagues flows smoothly through this medium	0.869	0.936	0.938	0.937

Sarstedt & Ringle (2012) state that the estimation by PLS algorithms generates coefficients of standardized relationships with values between -1 and 1. In addition, Smart PLS version 3 allows estimating the model by bootstrapping with which the values of the T test can be obtained for each indicator. Through this model, we were able to determine that for a subsample of 5000, video conferences also cause a significant effect on job performance, as shown in table 2.

TABLE II  
BOOTSTRAPPING MODEL. ORIGINAL SAMPLE (O), AVERAGE SAMPLE (M), STANDARD DEVIATION (STDEV), STATISTICAL T ( $|O / STDEV|$ ), P VALUES

	O	M	STDEV	$ O / STDEV $	P values
Interaction via Email →Work Performance	0.316	0.314	0.093	3.405	<b>0.001</b>
Interaction through Voice Calls →Work Performance	0.106	0.114	0.109	0.976	<b>0.329</b>
Interaction through Instant Messaging →Job Performance	0.108	0.106	0.117	0.925	<b>0.355</b>
Interaction through Video Conference →Work Performance	0.181	0.18	0.089	2.048	<b>0.041</b>

#### IV. CONCLUSIONS AND RECOMMENDATIONS

The degree of user satisfaction with respect to the virtual interaction platforms according to the route diagram shows that the people who practiced telework have a high degree of satisfaction in the use of these platforms. The results of the analysis of this variable are relevant because they show through data that virtual communication, like face-to-face communication, is effective in the workplace if it is carried out with the appropriate tools.

However, it should be mentioned that this type of work has some difficulties that cause certain limitations that could affect job performance. The main problems reported by the respondents in this research were: internet connectivity, distractions at home and the establishment of a working schedule. The most widely used platform is email followed by instant messaging. This indicates that the asynchronous interaction tools are the preferred ones of the respondents and allows them a better communication since they express themselves with greater freedom.

The self-perception that teleworkers have regarding their work performance in this modality is good, since they can better choose their schedule and form of work and are in accordance with their working hours, that is, in general the teleworker feels comfortable with this new modality. This indicates that it is possible to establish this work methodology not only during the period that the restrictions last to contain the COVID19 pandemic, but in more extensive stages according to the needs that the work activity merits.

The project collects the necessary information for researchers who want to obtain information on the main platforms most used in the workplace and the degree of satisfaction that workers have. Carry out a study on the point of view of managers regarding the work performance of workers in the teleworking modality and feasibility not only as a provisional measure but to be implemented as a permanent modality for certain areas It is also suggested to carry out a study on teleworking. A viable option to share the first years of a child's life. Influence on job performance, pros, and cons of this little-used alternative in the country.

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