INFORMATION TECHNOLOGY AND SOCIAL MOVEMENTS: A STUDY IN THE FREE PASS MOVEMENT

A TECNOLOGIA DA INFORMAÇÃO E OS MOVIMENTOS SOCIAIS: UM ESTUDO DO MOVIMENTO PASSE LIVRE

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ABSTRACT

In recent years, Brazil has witnessed protests organized by a group called Free Pass Movement. In 2013, the main demand was against the raise of the price for public transportation, and complaints were expanded to the political system, health and education demands, corruption and spending on the 2014 World Cup. In 2015, public protests returned to the national political scene. The use of social networks as people's communication vehicle to show dissatisfaction was widely used as well as a means of articulation of groups. This study aimed to identify the factors that led people to use social networks to participate in the protests, with 257 respondents who took part of the Free Pass Movement. Results show the factors that positively influence the use of social networks with protest purposes and demonstrate the respondents' disbelief regarding some positive effect to solve public management problems.

Keywords: Free Pass Movement, protests, information technology, technology adoption, social networks.

RESUMO

Nos últimos anos, o Brasil tem presenciado protestos organizados por um grupo intitulado Movimento Passe Livre. A principal reivindicação em 2013 era contra o aumento da passagem do transporte público, e as reclamações expandiram para o sistema político, demandas de saúde e educação, corrupção e gastos com a Copa do Mundo de 2014. Em 2015, os protestos públicos retornaram ao cenário político nacional. Nota-se a utilização das redes sociais como veículo de comunicação da insatisfação da população, além de um meio de articulação dos grupos. Este estudo teve como objetivo identificar os fatores que levaram as pessoas à utilização das redes sociais para participação nos protestos, tendo como respondentes 257 cidadãos atuantes no Movimento Passe Livre. Os resultados evidenciam os fatores que influenciam positivamente a utilização de redes sociais com fins de protestos e demonstram a descrença dos respondentes em relação a algum efeito positivo à solução dos problemas da gestão pública.

Palavras-chave: Movimento Passe Livre, protestos, tecnologia da informação, adoção tecnológica, redes sociais.

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1. INTRODUCTION

Information and communication technology (ICT) plays an important role in contemporary social movements and is often the way demonstrations are organized or serves as information channel (SHIRKY, 2011; NICOLETTI, 2014).

In social movements, information channels and the flow of resources depend on connections and associations between the actors of movements (OBACH, 2004; VAN DYKE; MC-CAMMON, 2010) and the Internet facilitates this transfer process, increasing the initiatives of various types. Social networks combine in a very practical way people of different profiles and ideas, who are looking for change, and reduce barriers to mobilization (PEREIRA, 2011).

Thus, to build the objectives of the movement, organizations of social movements constantly share information on strategies of protests, relevant events for the movement and new ideas (WANG; SOULE, 2012).

Coordination capacity of individuals and organizations within interdependent networks can determine the success of social movements. Research has shown that understanding these associations structure helps in understanding a variety of results arising from movements (PUTNAM, 1993; BALDASSARI; DIANI, 2007; GOULD, 1993; BEARMAN; EVERETT, 1993).

Sharing information of protests, one of the main pieces of information circulating, refers to tactics used to push for any desired change (e.g., MCADAM; RUCHT, 1993; KRIESI; KOOPMANS; DUYVENDAK, 1995; SOULE, 1997, 2004; GIVAN; ROBERTS; SOULE, 2010). Thus, social networks play an important role in the spread of information regarding movements, since they connect people without limiting time or space. Everything is continuous and ubiquitous.

Thus, the Internet can be considered an effective means for replication of ideas as well as articulation and political and social mobilization. There is a promising research agenda interested in measuring the online social behavior and its influence on actions in the real world (MORAES; SANTOS, 2013; BOYD; ELLISON, 2007). It is known that there are not many studies related to individual participation in protests through digital communication (BRANDSTÄTTER; OPP, 2014).

This study addresses the use of social networks as a facilitator of participation in protests from the users' perspective. The research aims to increase understanding of the information technology application in the population's dissatisfaction context considering recent Brazilian events that took place in June 2013 – the Free Pass Movement (MPL, in Portuguese). Thus, it aims to identify and analyze factors that led people to use social networks to participate in the protests that took place in 2013 in Brazil.

Such an understanding can help managers of government institutions, administrators and developers of information systems and communication channels to better understand individual aspects related to the use of social networks and which can motivate citizens in the share of social protests and demonstrations. The study on antecedent factors of using these communication technologies can contribute to analyze government actions and to encourage participation and interaction between government and citizens.

2. THEORETICAL FRAMEWORKS

2.1. Protests

To Giugni (1998), citizen involvement in social movements has considerable implications for the lives of people and communities, both social and politically. In recent decades, the spread and repertoire of protests increased, presenting as one of the most visible and effective tools for social change.

Movements that occurred in Istanbul, the Arab Spring, the indignant of Spain, the Occupy Wall Street, among others, can be highlighted. The protests were mostly composed of young people, summoned by social networks, without the interference of unions, political parties or traditional mass organizations (HARVEY et al., 2013).

Studies on collective action and specifically on the behavior during protests have been used to address the matter mainly according to structural and cultural perspectives (GIUGNI, 1998).

The structural perspective emphasizes the external environment influence on the emergence and development of social movements. The aspects considered in structural perspective are:

a) The role of organizations and informal networks to mobilize citizens for collective action (MCCARTHY, 1996; MCCARTHY; ZALD, 1973);

b) Specific characteristics of a political system that can enhance or inhibit the development of social movements, and explain the differences in action repertoires (MCADAM, 1996; TARROW, 1994).

The cultural perspective is focused on recognizing the role of social cognitive processes in the social movements' development, identifying the primary impulse of complaints of social actors that lead to the emergence of social movements (MELUCCI, 1985, 1989). Recognizing that the movements involve social standards and identity issues, and that collective actors seek to create group identity is fundamental to this perspective (GAMSON; FIREMAN; RYTINA, 1982; JOHNSTON; KLANDERMANS, 1995; MELUCCI, 1996; SNOW et al., 1986).

Other approaches have tried to explain collective actions using individual and social variables, considering them mutually connected. To Giugni (1998),

these approaches share the basic idea that categorization and allocation processes, all favoring or harming involvement in social action, depend on both individual and cultural variables. While individual variables exert their influence through attitudes, values and beliefs, cultural variables use information, action repertoires, and tools available for creating and manipulating symbols and communication, thus allowing the construction of shared identities.

Participation in collective actions of political protests, as well as any type of behavior, is a confluence of circumstances and motivations and emotions of people. In its basic structure, and as a result of evolutionary processes of adaptation, those provisions are shared by all humans, but their intensity varies among individuals (KANAZAWA, 2010; TOOBY; COSMIDES, 1990).

2.2. Free pass movement

In Brazil, in June 2013, the city of São Paulo witnessed the beginning of protests carried out by the Free Pass Movement (MPL, in Portuguese) group. The main demand was against the raise of R$ 0.20 (twenty cents) in price for public transportation, regarded as expensive and of poor quality (MORAES; SANTOS, 2013; SANTOS; SANTOS, 2013; RIBEIRO, 2014; WINTERS; WEITZ-SHAPIRO, 2014).

There were tear gas, rubber bullets and unjustifiable police violence in the protests that occurred in the avenues of the city (MATOS, 2014; WINTERS; WEITZ-SHAPIRO, 2014). Brazilian citizens demanded explanations regarding the disproportionate aggression, and protests were spread across the country and Brazilians living abroad. Hundreds of thousands of people took to the streets, every day, shouting watchwords, while other thousands of people gathered in major cities in Europe, Canada and the United States to show solidarity with the demonstrators and denounce police brutality (SANTOS; SANTOS, 2013).

Complaints regarding public transportation were extended to dissatisfaction with the political system itself, deficiencies in health and education, spending on 2014 World Cup and corruption (MATOS, 2014; MORAES; SANTOS, 2013; RIBEIRO, 2014). On June 15, 2013, the Confederations Cup started, as the countdown to the World Cup, which further intensified the protests (GUTTERRES, 2014).

The number of people involved has overcome Brazilian past protests. Protesters had colorful posters revealing new demands: questions about the forced removal of poor residents from their homes; opposition to the reforms in the public space due to FIFA commitments; reduction of urban violence; rejection of some Constitutional Amendments, removal of elected representatives from the office, among others. Protests were organized in several cities, including in small ones (GUTTERRES, 2014).

Protests had a much broader character, which took politicians, journalists and other observers by surprise (WINTERS; WEITZ-SHAPIRO, 2014).

According to Winters and Weitz-Shapiro (2014), the protest was portrayed as nonpartisan, which should have increased the probability that the Brazilian citizens were considering government failures (highlighted by the demonstrators) as a failure by the parties, in large-scale.

According to research on the protests, conducted by Ibope (2013), respondents considered that the main issues of Brazil are: public safety and violence; education; healthy; drugs; and combating corruption.

Most respondents (75%) were in favor of the protests, and the main reasons met the problems of the country: against the raise of price for public transportation; greater investments in health and education; against politicians in general; against the lack of public safety; against inflation; and improvements in public services (IBOPE, 2013).

However, according to IBOPE (2013), even protesting, most citizens do not believe that this will result in major changes to the country: 47% said that the demonstrations should bring little change and only 26% said they should bring many changes. Most respondents considered that the protesters acted, in general, with a lot of violence (44%). Other respondents considered that there was violence, but with no exaggeration (39%).

Winters and Weitz-Shapiro (2014) studied the Brazilian protests, considering people who participated in political parties and non-partisan people. The findings indicate that the protests increased the amount of non-partisan people and strengthened irrelevant parties.

It was observed that online social networks have been widely used as one of the communication tools available for information sharing and coordination of the groups participating in the demonstrations (GUTTERRES, 2014).

Moraes and Santos (2013) used two tools to better understand the protests over the Internet: one that measures the rate of interest for a certain search term (*Google Trends*); and another that measures the frequency of entries in blogs of a certain term (*Meltwalter IceRocket*). They measured the following keywords: protests; corruption; political reform; plebiscite; free pass and PEC 37 (PEC – Proposed Constitutional Amendment).

The results of Moraes and Santos' study (2013) show that there was an almost viral flow of all the search terms in June, coinciding with the period of greatest flow of street protests. Graph 1 shows the relationship of the estimated number of people per day, coinciding with online results.
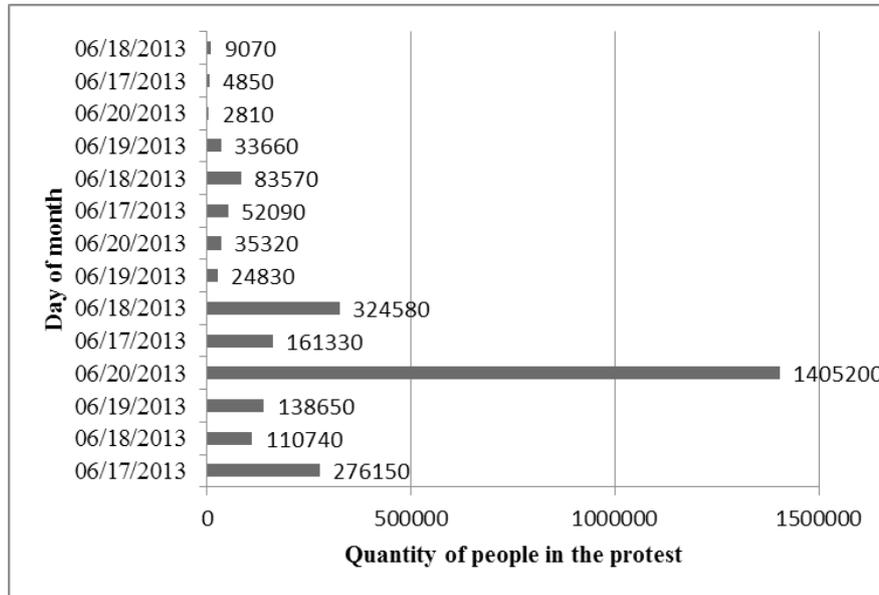
2.3. Research on technology adoption

The Unified Theory of Acceptance and Use of Technology (UTAUT), developed by Venkatesh et al. (2003), is one of the models used in the literature of information systems to evaluate factors
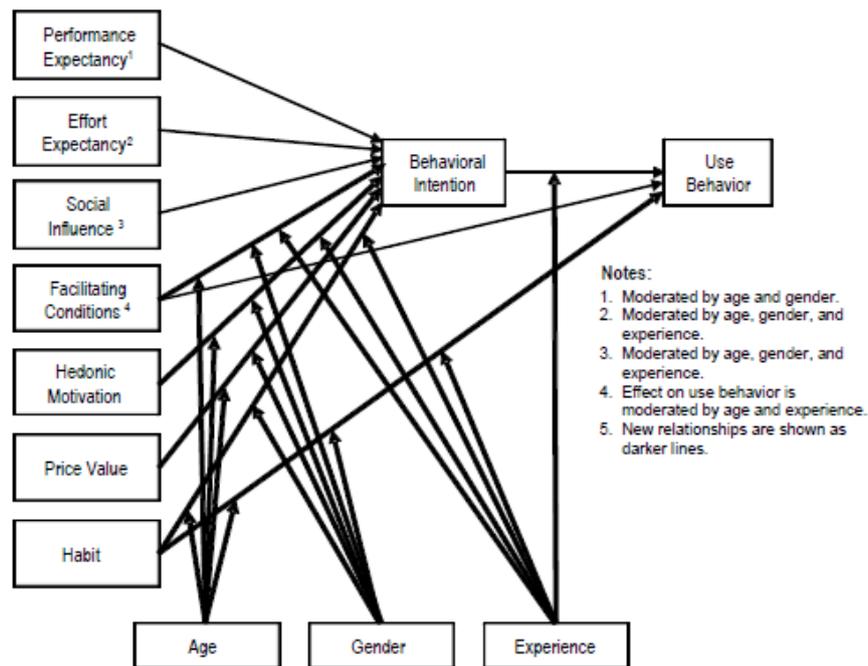
that favor the use of technology. The model is the unification of eight previous models with four constructs (Performance Expectancy, Effort Expectancy, Social Influence and Enabling Conditions) considered determinant direct acceptance and use of technology behavior.

Aiming to expand the understanding of the reasons that lead users to adopt or not certain information technology, Venkatesh, Thong and Xu (2012) presented a new model with three new constructs (Hedonic Motivation, Price Value and Habit) called UTAUT-2, shown in Figure 1.

Graph 1 – Estimated ratio of number of people per day, in the manifestations that took place in Brazil in June 2013

Source: Santos and Santos (2013), based on Military Police, Military Brigade, Federal Highway Police, Datafolha, COPPE-UERH and NitTrans.

Figure 1 – UTAUT 2 – Unified Theory of Acceptance and Use of Technology

Source: Venkatesh, V., Thong, J. Y. L., Xu, X. (2012).

As moderators of the intention to adoption and of the effective use, the authors highlight Age, Gender and the Individual Experience of use of information technology.

According to this theory, Performance Expectancy assesses to what extent individuals believe that the use of the system will contribute to the performance in their work. Thus, it is believed that the citizen believes that using social networks to protest can contribute to the improvement of public services, help fighting corruption and/or improving citizens' political consciousness. Thus, the first hypothesis of this study is formulated:

Hypothesis 1: Performance Expectancy positively influences the Use of social networks to protest.

The Effort Expectancy construct refers to the perspective of ease of the individual regarding system use and the Social Influence construct is conceptualized as the intensity in which the subject understands the influence that important people in their social circle exercise on them in such a way that they use technology.

Thus, there may be a positive influence on the use of social networks to protest, to the user that can easily post, like and/or share protest messages on social networks as well as the user receiving influences from closer people that support and share protest messages through social networks. Therefore, the following hypotheses can be drawn:

Hypothesis 2: Effort Expectancy positively influences the Use of social networks to protest.

Hypothesis 3: Social Influences positively influence the Use of social networks to protest.

UTAUT-2 still associates the Enabling Conditions constructs and the Price Value as aspects that are related to the use of information technology (IT). Enabling Conditions refer to the individual's perception on the existence of a technical and organizational infrastructure for system use.

Price Value is the comparison of the benefit perceived by technology use, including advantages over monetary cost. These factors are not analyzed in this study, since the use of social networks to manifestation requires that the user has overcome difficulties of access, and because the study is the analysis of a free social network, it would make no sense to analyze monetary influences to use it.

Habit is defined as the extent to which people tend to automatically perform behaviors because of learning (LIMAYEM; HIRT; CHEUNG, 2007). Venkatesh et al., (2012) obtained significant results regarding the Habit construct, with UTAUT-2 formulation and other technology studies (KIM; MALHOTRA; NARASIMHAN, 2005; LIMAYEM; HIRT; CHEUNG, 2007). In this study context, it seems that the citizen who has the habit to access, communicate and share content in social networks can impact the use of social networks for protests, constituting Hypothesis 4.

Hypothesis 4: Habit positively influences the Use of social networks to protest.

Researchers of consumer behavior and information systems have used constructs related to hedonic motivation (e.g., pleasure) in their studies, showing the relevance of the variable both in consumption and in IT use (BROWN; VENKATESH, 2005; HOLBROOK; HIRSCHMAN, 1982; NYSVEEN; PEDERSEN; THORBJORNSEN, 2005; VAN DER HEIJDEN, 2004). Hedonic Motivation is defined as the fun or pleasure in using a technology (VENKATESH; THONG; XU, 2012). Thus, it is understood that the user of social networks may find fun and enjoyable to use social networks to protest, which formulates the fifth hypothesis of this research:

Hypothesis 5: Hedonic Motivations positively influence the Use of social networks to protest.

However, the adoption of the use behavior of information technology can be influenced by demographic characteristics such as age and gender of users (VENKATESH et al., 2003; VENKATESH; THONG; XU, 2012). Thus, the following hypotheses are elaborated:

Hypothesis 6: There are differences between the relationships of prior use behavior regarding social networks to protest among users of different ages.

Hypothesis 7: There are differences between the relationships of prior use behavior regarding social networks to protest among users of different genders.

3. METHODOLOGICAL PROCEDURES

The study was conducted by a quantitative method with the use of multivariate data. According to Hair, Hult, Ringle and Sarstedt (2013) suggestions, in which the theories of social movements are poorly developed and the goals are the prediction and explanation of the given constructs, we opted for the use of Partial Least Squares Path Modeling (PLS-SEM).

The model was estimated by PLS-PM (Partial Least Squares Path Modeling) because it has the advantage of simultaneously estimate the measurement model (relation between indicators and latent variables) and the structural model (relations between latent variables).

The option of using the PLS in this study was due to its characteristics, since it is considered the most appropriate method to be used in exploratory studies and whose data are less susceptible to deviations from multivariate normality. In addition to this method, sample size requirements are smaller (SANCHEZ; CAPPELLOZZA, 2012).

The model developed for research only shows reflective indicators, and the criteria used for evaluation were: internal consistency, reliability indicator, convergent validity and discriminant validity. We conducted a single cross-sectional, conducted through a survey, which seeks, among other objectives, to identify views of specific groups and the distribution of the phenomenon in the population (PINSONNEAULT; KRAEMER, 1993).

Research protocol was presented to participants prior to the questionnaire and contained essential information about the survey: objectives, risks, benefits involved, closure criteria or search suspension and dissemination of results.

The preliminary questionnaire was validated by a group of five experts from the information technology area who have already used technology adoption models. Scales have been adapted to the context of using the social network for protesters and their original formulations were obtained from the Venkatesh, Thong, & Xu (2012) study. The final questionnaire is presented in Appendix A.

Questions were statements that users responded in a Likert scale based on five levels, ranging from the extremes Strongly Disagree to Strongly Agree.

Data analysis was performed using multivariate analysis technique of structural equation modeling, which is suitable for situations of multiple relationships simultaneously (CHIN; MARCOLIN; NEWSTED, 2003; HAIR; ANDERSON; TATHAM; BLACK, 2005).

4. PRESENTATION AND DISCUSSION OF RESULTS

4.1. Information of the sample and measuring instrument

It is highlighted that this single cross-sectional survey was conducted through survey under exploratory character, and observed data were analyzed from a questionnaire prepared for empirical data collection. In this study, the Likert scale was considered as interval scale as a way to avoid multivariate outliers, for its convenience of use, in addition to the ability to use statements that are not explicitly linked to the studied object in order to gather information on individual perceptions of respondents (HAIR JR. et al., 2005). For calculation and validation of statistical tests, software Smart-PLS v2.0 (RINGLE; WENDE; BECKER, 2014) and SPSS v.17 were used.

The minimum size of the sample was defined using software G* Power version 3.1.9 (FAUL et al., 2009) equal to 138 respondents, although the sample size exceeds Hair Jr. et al., (2005) suggestion,

which establishes a minimal number of observations five times the number of variables.

For data collection, a link that directed the respondents to the online questionnaire was made available in several virtual communities on Facebook, according to Table 1.

The questionnaire was applied in 2013, in the months of September, October and November.

Table 1 –Virtual communities that participated in the survey

Community	Members	Address
Vem Pra Rua Brasil	Above 500.000	https://www.facebook.com/VemPraRuaBrasil.org
Vem Pra Rua	Above 20.000	https://www.facebook.com/AMaiorarquibancadaDoBrasil
Acorda Brasil Vem pra Rua	Above 3.000	https://www.facebook.com/Acordabrasilvemprarua
Vem Pra Rua	Above 6.700	https://www.facebook.com/Vempraruagalera

Source: The authors.

We obtained 257 questionnaires from citizens who participated in the Free Pass Movement through social networks, without stratification of sample and considered valid. The average age of respondents is equal to 24.25 years with a standard deviation of 8.23, indicating that the sample is made up of young adults. Gender hegemony was not observed in the sample, since the sample consisted of 53% of female respondents.

However, the study data shows that a significant amount of respondents who voluntarily answered the questionnaire belongs to the state of São Paulo. Table 2 shows the distribution of the geographic origin of respondents.

Table 2 – Geographic origin of respondents

Origin	Country	Quantuty (%)
São Paulo	Brazil	97,67%
Santa Catarina	Brazil	0,39%
Minas Gerais	Brazil	0,39%
Rio Grande do Sul	Brazil	0,39%
Pisa	Italy	0,39%
Dublin	Ireland	0,39%
Buenos Aires	Argentina	0,39%

Note: n = 257 respondents.

Source: The authors.

4.2. Analysis of the measures model

In order to analyze the significance of loads obtained for the observable variables, we chose to use the bootstrapping technique, which, according to Hair Jr. et al., (2005), is not based on single model estimation, but calculates parameter estimates and their confidence intervals based on multiple estimates; in this research a resampling of 1000 samples was conducted.

Table 3 summarizes the coefficients values between constructs, estimated by the PLS in order to verify whether their values are significantly different from zero and have levels of significance lower than 5% to the relationships established in the model.

Table 3 shows that the coefficients of the Performance Expectancy and Hedonic Motivations constructs associated with the Use of Social Network construct did not show significant values and, therefore were eliminated from further analysis and validation. Considerations of these significance absences were made on the "Interpretation of Results" topic.

Table 3 – Coefficients of the structural model – between constructs

	Medium	Standard Deviation	Statistics T	p-value (two-tailed)
Performance Expectancy → Use	0.04	0.05	0.68	0.50
Effort Expectancy → Use	0.36	0.06	5.88	0.00
Habit → Use	0.19	0.05	3.62	0.00
Social Influences → Use	0.26	0.06	4.53	0.00
Hedonic Motivations → Use	0.05	0.06	0.79	0.43

Source: The authors.

Then, we proceeded to new structural model calculations, with the Effort Expectancy, Habit, Social Influences and Use of social network constructs, and results of Tables 4 and 5 were obtained with values of coefficients of variables and coefficients between the constructs estimated by PLS.

Table 4 – Structural model coefficients – variables associated with constructs

	Medium	Standard Deviation	Statistics T	p-value (two-tailed)
EE1 ← Effort Expectancy	0.55	0.08	7.09	0.00
EE2 ← Effort Expectancy	0.87	0.02	39.79	0.00
EE3 ← Effort Expectancy	0.89	0.02	47.69	0.00
HAB1 ← Habit	0.71	0.07	10.58	0.00
HAB2 ← Habit	0.89	0.03	35.32	0.00
HAB3 ← Habit	0.64	0.07	8.80	0.00
SI1 ← Social Influences	0.65	0.07	10.06	0.00
SI2 ← Social Influences	0.80	0.04	19.97	0.00
SI3 ← Social Influences	0.82	0.0	22.93	0.00
USE1 ← Use	0.81	0.02	34.02	0.00
USE2 ← Use	0.90	0.01	60.30	0.00
USE3 ← Use	0.78	0.03	23.95	0.00
USE4 ← Use	0.82	0.03	30.72	0.00

Source: The authors.

Table 5 – Coefficients of the structural model – between constructs

	Medium	Standard Deviation	Statistics T	p-value (two-tailed)
Effort Expectancy → Use	0.35	0.07	5.22	0.00
Habit → Use	0.20	0.05	3.55	0.00
Social Influences → Use	0.30	0.06	5.26	0.00

Source: The authors.

In order to examine the convergent and discriminant validity of the constructs used in the structural model, a Confirmatory Factor Analysis was carried out (Hair, et al., 2005). These results of the factor loadings, shown in Table 6, allow the analysis of the structural model.

Table 6 shows that most of the constructs have indicators with high loads on their latent variables,

higher than 0.70 and low loads in the other latent variables, indicating a reasonable discriminant validity and convergent validity (CHIN, 2000). Thus, the scales indicators without having obtained discriminant validity among the constructs were excluded from further statistical analysis.

Table 6 – Factor loading of the constructs

Construct	Variable	Effort Expectancy	Habit	Social Influences	Use
Effort Expectancy	EE1	0.55	0.33	0.21	0.22
Effort Expectancy	EE2	0.87	0.38	0.39	0.51
Effort Expectancy	EE3	0.89	0.55	0.51	0.59
Habit	HAB1	0.35	0.72	0.28	0.24
Habit	HAB2	0.49	0.89	0.39	0.52
Habit	HAB3	0.38	0.65	0.11	0.24
Social Influence	SI1	0.28	0.14	0.66	0.32
Social Influence	SI2	0.39	0.29	0.80	0.44
Social Influence	SI3	0.45	0.38	0.82	0.46
Use	USE1	0.50	0.37	0.44	0.81
Use	USE2	0.53	0.42	0.47	0.90
Use	USE3	0.51	0.45	0.46	0.78
Use	USE4	0.46	0.38	0.44	0.82

Source: The authors.

Table 7 shows that the square root of the average variance extracted from constructs is greater than the correlation between the latent variables, which is an indicator that there is discriminant validity between constructs (FORNELL; LARCKER, 1981).

Table 7 – Discriminant validity

	Effort Expectancy	Habit	Social Influences	Use
Effort Expectancy	0.78			
Habit	0.54	0.76		
Social Influences	0.50	0.37	0.76	
Use	0.61	0.49	0.54	0.83

Source: The authors.

According to Hair Jr. et al., (2005), in addition to examination of loads for each indicator, a main measurement used to assess the measurement model is composite reliability of each construct. A reference value commonly used for acceptable reliability is 0.70. Accordingly, the measurement model is validated in analysis according to values shown in Table 8.

Considering the analysis of convergent validity, two indicators were used: Extracted Average Variance, which should have a value greater than 0.5, and Internal Consistency, with a value greater than 0.70 (FORNELL; LARCKER, 1981), shown in Table 8.
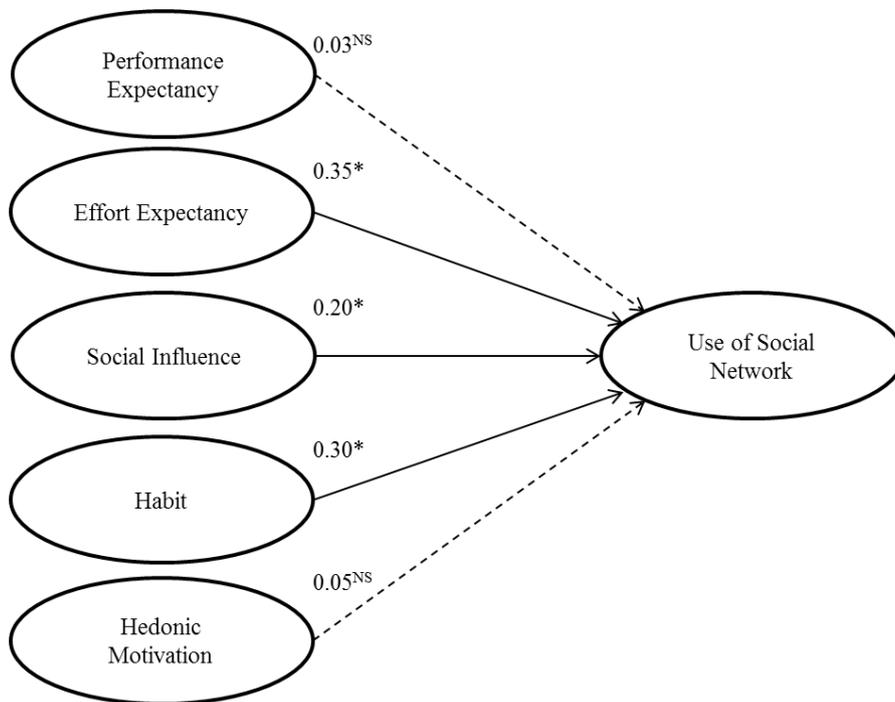
Table 8 – Validation of the Structural Model

Construct	Average Variance Extracted of the constructs	Composite Reliability	Internal consistency (Cronbach's Alpha)
Effort Expectancy	0.62	0.82	0.69
Habit	0.58	0.80	0.66
Social Influences	0.58	0.80	0.64
Use	0.70	0.90	0.85

Source: The a uthors.

Analysis of coefficient of determination (R²) was performed based on studies of Cohen (1977). According to the author, the development state of significant part of behavior science is of a kind that do not predicts much of the variance in the dependent variable. Thus, the author proposes a scale for classifying the coefficient of determination, being R² equal to 10% considered low, R² equal to 30% considered medium and R² equal to 50% considered high. Therefore, the quality of the adjusted model of this research was evidenced by assessing the R² of the latent variable: the use of variables considered significant in the research model provided the explanatory power of 47% use of social network for demonstrations. Figure 2 shows the resulting research model with a synthesis of the hypotheses validation.

Figure 2 – Resultant model of research and synthesis of hypotheses validations

Notes: NS = nonsignificant; * = significant at 0,1%.

4.2.1. Analysis of multigroups on the use of social network

Studies related to the adoption of Information Technology (VENKATESH et al., 2003; VENKATESH; THONG; XU, 2012) consider the possibility of certain individual characteristics to influence the relationship of prior factors to the use of Technologies such as age, gender and other variables. Table 9 presents the results of analyzes of these variables as moderators of the relationships between constructs in having groups by gender.

Table 9 – Relationships analysis of the research model by gender

Relationship Analysis	p-value
Effort Expectancy → Use of Social Network	0.00
Habit → Use of Social Network	0.53
Social Influence → Use of Social Network	0.00

Source: The authors.

Results in Table 9 show that there are significant differences in relationships between the Effort

Expectancy and Social Influences constructs, in such a way that male and female social network users differentiate the impact of motivational relationship on the use of that technology. According to the results of analyzes between groups, men value more the ease of use and are less susceptible to Social Influence on the use of social network for demonstrations.

Table 10 shows the test results of relationships between the constructs with respondents groups aged up to 25 years and another group with higher age.

Results of Table 10 show that there are no significant differences in relationships between the constructs associated with the use of IT, in such a way that users with age differences do not distinguish the impact of the relationship of motivators on the use of that technology.

Table 10 – Relationship analysis of the research model by age groups

Relationship Analysis	p-value
Effort Expectancy → Use of Social Network	0.16
Habit → Use of Social Network	0.42
Social Influence → Use of Social Network	0.68

Source: The authors.

Finally, from the validations obtained with the structural model, Table 11 shows the synthesis of hypotheses tests of the study.

Table 11 – Synthesis of hypotheses of the study

Hypothesis	Description	Result
H1	Performance Expectancy positively influences the Use of social networks to protest.	Unconfirmed
H2	Effort Expectancy positively influences the Use of social networks to protest.	Confirmed
H3	Social Influences positively influence the Use of social networks to protest.	Confirmed
H4	Social Habit positively influences the Use of social networks to protest.	Confirmed
H5	Hedonic Motivations positively influence the Use of social networks to protest.	Unconfirmed
H6	There are differences between the relationships of prior use behavior regarding social networks to protest among users of different ages.	Unconfirmed
H7	There are differences between the relationships of prior use behavior regarding social networks to protest among users of different genders.	Partially Confirmed

Source: The authors.

5. CONCLUSIONS

In the research of Venkatesh et al. (2003) the constructs that influenced the Intention to Use were: Performance Expectancy, Effort Expectancy and Social Influence. However, the study of Venkatesh, Thong and Xu (2012), besides the previous study constructs, the constructs Hedonic Motivation, Value and Price Habit been validated.

In this study, assumptions about the constructs Effort Expectancy, Social Influence and Habit were confirmed. However, Performance Expectancy and Hedonic Motivations did not test significantly.

According to this study, the absence of the Performance Expectancy construct shows the disbelief from some users on the efficiency of sharing messages of demonstrations by the social network Facebook. In other words, users of this social network realize that posted messages may not result in any positive effect to the solution to the Brazilian issues.

That is, although this communication channel has various forms of messaging and with a significant number of connected Brazilian users, one cannot state that users believe their messages can help in addressing the demands or reforms requested to the rulers.

According to the study results, the users have no fun nor feel pleasure in sharing messages of manifestation, since significant influences of this construct to use social network for this purpose were not detected.

However, Effort Expectancy turns out to be a positive influence to the use of social network for demonstrations. Thus, it is understood that social network technical aspects, such as the user's interface and features that make sharing information in a friendly way, can help users to transmit information through this communication channel.

According to the calculated values of individual effort expectancy, this perception was the factor that most influenced the user to share messages of manifestation over the social network Facebook. It is noteworthy that, according to the results, men value more the ease of use than women. Thus, the ease of use affects men more than women.

Because it is a technological application of personal communication, in which the use of application is subject to network effects, it is understood that positive and significant association of social influences to the use of technology is a plausible result. According to the results, it seems that social influences represent the second greatest influence when sharing messages of manifestation. Hence, the results show that women are more susceptible than men regarding social influence on the use of social network for demonstrations. That is, women are more influenced than men by others' opinions to use social networks for this purpose.

Apart from these influencing aspects to the use of technology, the study showed that habit is another factor that motivates the use of social network, given its significant positive influence on the use of this application.

The value of the coefficient of determination of the use of social network construct equal to 47% shows a reasonable explanation for the selection of the analyzed constructs. However, continuing this study with the inclusion of other possible constructs is suggested such as availability of technology access to the user.

For public administration, the study expands the understanding of aspects related to the use of social networks by some citizens, enabling thus, the use of the results to increase their participation and involvement with the demonstrators.

Understanding that the population uses social networks to protest mainly because of the ease of interaction with technology influences on their network and usage habits, and shows that they do not perform protests for fun; governments could recognize this channel as a possibility of effective and serious interaction with citizens.

The disbelief in the possibility of benefits with the protests (improving public services, assistance in combating corruption and/or improving citizens' political awareness) is a need to increase the effectiveness of solutions of public administration to the Brazilian citizens as a response to their demands in this solid communication channel among the Brazilians.

Acknowledgments

REFERÊNCIAS

ARAÚJO, I. O.; FARONI, W. *Os movimentos sociais no contexto da administração no Brasil*. In: ENCONTRO DA ANPAD, 39., 2015, Belo Horizonte. *Anais…* Belo Horizonte, 2015.

BALDASSARI; D.; DIANI, M. The integrative power of social networks. *American Journal of Sociology*, Chicago, v. 113, n. 3, p. 735-80, 2007.

REFERÊNCIAS

BEARMAN; P.; EVERETT, K. D. The structure of social protest, 1961-1983. *Social Networks,* Amsterdam, v. 15, n. 171-200, 1993.

BOYD, D. M.; ELLISON, N. B. Social network sites: definition, history, and scholarship. *Journal of Computer-Mediated Communication,* Massachusetts, v. 13, n. 1, p. 210-230, 2007.

BRANDSTÄTTER, H.; OPP, K. D. Personality traits ("Big Five") and the propensity to political protest: alternative models. *Political Psychology,* Massachusetts, v. 35, n. 4, p. 515-537, 2014.

BROWN, S. A.; VENKATESH, V. Model of adoption of technology in the households: a baseline model test and extension incorporating household life cycle. *MIS Quarterly,* Minneapolis, v. 29, n. 4, p. 399-426, 2005.

CHIN, W. W.; MARCOLIN, B. L.; NEWSTED, P. R. A partial least squares latent variable modeling approach for measuring interaction effects: results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information Systems Research,* Houston, v. 14, n. 2, p. 189-217, 2003.

CHIN, W. W. *Partial least squares for researchers: an overview and presentation of recent advances using the PLS approach.* Houston: University of Houston, 2000.

COHEN, J. *Statistical power analysis for the behavioral sciences.* 2. ed. The Concept of Power Analysis. New York: Academic, 1977.

FAUL, F. et al. Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods,* Cham, v. 41, n. 4, p. 1149-1160, 2009.

FORNELL, C.; LARCKER, D. F. Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research,* Chicago, v. 18, n. 1, p. 39-50, 1981.

GAMSON, W.; FIREMAN, B.; RYTINA, S. *Encounters with unjust authority.* Homewood: Dorsey, 1982.

GIUGNI, M. Structure and culture in social movement theory. *Sociological Forum,* Massachusetts, v. 13, n. 2, p. 365-375, 1998.

GIVAN, R. K.; ROBERTS, K. M.; SOULE, S. A. *The diffusion of social movements:* actors, mechanisms, and political effects. New York: Cambridge University, 2010.

GOULD, R. V. Trade cohesion, class unity, and urban insurrection: artisanal activism in the Paris Commune. *American Journal of Sociology,* Chicago, v. 98, n. 4, p. 721-54, 1993.

GUTTERRES, A. S. It's not easy, I ask for public mobility and the Government send skull against me: an intimate account of the political protests in Rio de Janeiro (June & July, 2013). *Anthropological Quarterly,* Washington, DC, v. 87, n. 3, p. 901-918, 2014.

HAIR JR., J. F. et al. *Análise multivariada de dados.* 5. ed. Porto Alegre: Bookman, 2005.

HARVEY, D. et al. *Cidades rebeldes*: Passe livre e as manifestações que tomaram as ruas do Brasil. São Paulo: Boitempo, 2013.

HOLBROOK, M. B.; HIRSCHMAN, E. C. The experiential aspects of consumption: consumer fantasies, feelings, and fun. *Journal of Consumer Research,* Chicago, v. 9, n. 2, p. 132-140, 1982.

IBOPE. *Pesquisa de opinião pública sobre as manifestações.* Ibope Inteligência. Brasil, jun. 2013.

JOHNSTON, H.; KLANDERMANS, B. *Social movements and culture.* Minneapolis: University of Minnesota, 1995.

REFERÊNCIAS

KANAZAWA, S. Evolutionary psychology and intelligence research. *American Psychologist,* Washington, DC, v. 65, p. 279-289, 2010.

KIM, S. S.; MALHOTRA, N. K.; NARASIMHAN, S. Two competing perspectives on automatic use: a theoretical & empirical comparison. *Information Systems Research,* Houston, v. 16, n. 4, p. 418-432, 2005.

KRIESI, H.; KOOPMANS, R.; DUYVENDAK, J. W. *New social movements in Western Europe*: a comparative analysis. London: UCL , 1995.

LIMAYEM, M.; HIRT, S. G.; CHEUNG, C. M. K. How habit limits the predictive power of intention: the case of information systems continuance. *MIS Quarterly,* Minneapolis, v. 31, n. 4, p. 705-737, 2007.

MATOS, A. R. On sluts, teachers, and black blocs: the street and the construction of political dissent in Brazil. *Signs - Journal of Women in Culture and Society,* Massachusetts, v. 40, n. 1, p. 69-74, 2014.

McADAM, D. Conceptual origins, current problems, future directions. In: McADAM, D.; McCARTHY, J. D.; ZALD, M. N. (Ed.). *Comparative perspectives on social movements*: political opportunities, mobilizing structures, and cultural framings. Cambridge: Cambridge University , 1996. p. 23-40.

McADAM, D.; RUCHT, D. The cross-national diffusion of movement ideas. *Annals of the American Academy of Political and Social Science,* California, v. 528, p. 56-74, 1993.

McCARTHY, J. D. Constraints and opportunities in adopting, adapting, and inventing. In: McADAM, D.; McCARTHY, J. D.; ZALD, M. N. (Ed.). *Comparative perspectives on social movements:* political opportunities, mobilizing structures, and cultural framings. New York: Cambridge University , 1996. p. 141-151.

MCCARTHY, J. D.; ZALD, M. D. *The trend of social movements in America*: professionalization and resource mobilization. Morristown: General Learning Corporation, 1973.

MELUCCI, A. *Challenging codes*: collective action in the information age. New York: Cambridge University, 1996.

_____. *Nomads of the present*: *social movements and individual needs in contemporary society*. Philadelphia: Temple University, 1989.

_____. The symbolic challenge of contemporary movements. *Social Research,* New York, v. 52, n. 4, p. 789-816, 1985.

MORAES, T. P. B.; SANTOS, R. M. Os protestos no Brasil: um estudo sobre as pesquisas na web, e o caso da Primavera Brasileira. *Revista Internacional de Investigación en Ciencias Sociales,* Asunción, v. 9, n. 2, p. 193-206, 2013.

NICOLETTI, A. S. *Participação política e as nuances das manifestações populares de junho de 2013 no Brasil*. In: ENCONTRO ABCP, 9., 2014, Brasília, DF. *Anais…* Brasília, DF, 2014.

NYSVEEN, H.; PEDERSEN, P. E.; THORBJORNSEN, H. Intentions to use mobile services: antecedents and cross-service comparisons. *Journal of the Academy of Marketing Science,* Cham, v. 33, n. 3, p. 330-346, 2005.

OBACH, B. K. *Labor and the environmental movement*: the quest for common ground. Cambridge: MIT Press, 2004.

PAZ GARCÍA, A. P.; BRUSSINO, S. Consumo juvenil de información política. Análisis estructural y reticular de las preferencias mediáticas de universitarios cordobeses. *REDES – Revista hispana para el análisis de redes sociales,* Córdoba, v. 26, n. 2, p. 171-205, 2015.

REFERÊNCIAS

PEREIRA, M. A. Internet e mobilização política: os movimentos sociais na era digital. In: ENCONTRO DA COMPOLÍTICA, 4., 2011, Rio de Janeiro. *Anais…* Rio de Janeiro: Universidade do Estado do Rio de Janeiro, 2011.

PINSONNEAULT, A.; KRAEMER K. L. Survey research methodology in management information systems: an assessment. *Journal of Management Information Systems,* London, v. 10, n. 2, p. 75-105, 1993.

PODSAKOFF, P. M. et al. Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology,* Washington, DC, v. 88, n. 5, p. 879-903, 2003.

PUTNAM, R. D. *Making democracy work: civic traditions in Modern Italy*. Princeton: Princeton University, 1993.

RIBEIRO, R. J. O Brasil e a democracia de protesto. *MATRIZes,* São Paulo, v. 8, n. 1, p. 93-117, 2014.

RINGLE, C. M.; WENDE, S.; BECKER, J. M. *SmartPLS.* Hamburg: SmartPLS, 2014. Disponível em: <https://www.smartpls.com/faq/smartpls-citation>. Acesso em: 17 dez. 2014.

SANCHEZ, O. P.; CAPPELLOZZA, A. Antecedentes da adoção da computação em nuvem: efeitos da infraestrutura, investimento e porte. *Revista de Administração Contemporânea,* Rio de Janeiro, v. 16, n. 5, p. 646-663, 2012.

SANTOS, J. E.; SANTOS, V. L. C. Geografia dos protestos e meio comunicacional: redes sociais digitais e manifestações populares. *Revista Movimentos Sociais e Dinâmicas Espaciais,* Recife, v. 2, n. 2, 2013.

SHIRKY, C. The political power of social media: technology, the public sphere, and political change. *Foreign Affairs,* Florida, v. 90, n. 1, p. 28-41, 2011.

SNOW, D. A. et al. Frame alignment processes, micromobilization and movement participation. *American Sociological Review,* California, v. 51, p. 464-481, 1986.

SOULE, S. A. Going to the Chapel? Same-sex marriage bans in the United States, 1973-2000. *Social Problems,* Oxford, v. 51, n. 4, p. 453-477, 2004.

_____. The student divestment movement in the United States and tactical diffusion: the Shantytown Protest. *Social Forces,* North Carolina, v. 75, n. 3, p. 855-882, 1997.

TARROW, S. *Power in movement*: collective action, social movements and politics. Cambridge: Cambridge University, 1994.

TOOBY, J.; COSMIDES, L. On the universality of human nature and the uniqueness of the individual: the role of genetics & adaptation. *Journal of Personality,* Massachusetts, v. 58, n. 1, p. 17-67, 1990.

VAN DER HEIJDEN, H. User acceptance of hedonic information systems. *MIS Quarterly,* Minneapolis, v. 28, n. 4, p. 695-704, 2004.

VAN DYKE, N.; McCAMMON, H. J. Introduction: social movement coalition formation. In: VAN DYKE, N.; McCAMMON, H. J. *Strategic alliances*: coalition building and social movements. Minneapolis: University of Minnesota, 2010. p. XI-XXVIII.

VENKATESH, V. et al. User acceptance of information technology: toward a unified view. *MIS Quarterly,* Minneapolis, v. 27, n. 3, p. 425-478, 2003.

VENKATESH, V.; THONG, J. Y. L.; XU, X. Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS Quarterly,* Minneapolis, v. 36, n. 1, p. 157-178, 2012.

REFERÊNCIAS

WANG, D. J.; SOULE, S. A. Social movement organizational collaboration: networks of learning and the diffusion of protest tactics, 1960-1995. *American Journal of Sociology,* Chicago, v. 117, n. 6, p. 1674-1722, 2012.

WINTERS, M. S.; WEITZ-SHAPIRO, R. Partisan protesters and nonpartisan protests in Brazil. *Journal of Politics in Latin America,* Hamburg, v. 6, n. 1, p. 137-150, 2014.

APPENDIX A

Questionnaire of the research

Use

USE1. I used social networks to protest.
USE2. I shared messages of protests through social networks.
USE3. I liked and/or commented messages of protests on social networks.
USE4. I posted messages of protests on social networks.

Performance expectancy

PEX1. I think that protests through social networks can contribute to improvements in public services.
PEX2. I believe that using social networks to protest can help fighting corruption.
PEX3. I think that protests through social networks can improve the political consciousness of citizens.

Effort expectancy

EE1. I find it easy to share messages of protests through social networks.
EE2. I find it easy to post messages of protest on social networks.
EE3. I find it easy to like messages of protest on social networks.

Social influence

SI1. My closest relatives recommend the use of social networks to protest.
SI2. People from my professional contact approve my protest through social networks.
SI3. People who influence my behavior agree with the use of social networks to protest.

Hedonic motivations

HM1. It is fun to use social networks to protest.
HM2. I find it enjoyable to use social networks to protest.
HM3. It is pleasurable to use social networks to protest.

Habit

HAB1. I have the habit of surfing social networks to be informed about the events and to like content.
HAB2. I have the habit of sharing content through social networks.
HAB3. I have the habit of communicating with friends through social networks.