Adopting Advertising and Communication Innovations in Small Firms

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Abstract: The adoption of innovation for market penetration of small firms tends to consider the effectiveness of communication channels. In this study we investigate the adoption of communication and advertising innovations, the use of virtual social networks, in a sample of 227 small firms in the Brazilian countryside. We analyse how distinct communication objectives of a firm influence the choice of using virtual social networks to build links between firms and customers. We also look at the role of paid advertising in virtual social networks. Main results show a trend of such firms to engage in virtual social networks when they are targeting at stronger brand image and when building deeper links through brand information with their public. Firms also tend to use advertising in virtual social networks when intending to raise brand recall from their brand portfolio.

Keywords: Internet, Marketing, Advertising, Innovation, Innovation In Advertising, Small Firms, Virtual Social Networks, Communication Objectives, Adopting Innovation, Diffusion of Innovation.

INTRODUCTION

Innovative schumpeterian entrepreneurship has historically looked at small firms as a metric of entrepreneurship and a source of innovations that may lead small companies to become large, multibillionaire conglomerates, such as Facebook and Apple Inc. (Henkerson and Sanandaji, 2014). However, small firms tend to not engage in innovative behaviour (Spencer et al., 2012), and deny the adoption of innovations due to uncertainties (Lin and Chen, 2012), resources and capabilities constraints (Spencer et al., 2012) and because a small loss of performance can result in risky setbacks.

After 20 years of the popularization of the world wide web, some small firms are still reluctant to use the internet as a communication tool to build links with their costumers, even though the increasingly popular virtual social networks (VSNs) such as Facebook and Twitter have become an option for building these links.

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199

The internet and social media websites are not recent innovations, but still find some difficulties for the adherence of small firms, especially outside of large and developed cities. In this paper, we investigate the main communication objectives that motivate small firms to use the internet and social media as communication tools for advertising, promotion and a relationship link between firm and consumers. We specifically intend to point out the factors that influence the decision of adopting the internet and social media as communications tools in these small firms.

Methodologically, we conducted a survey with 227 small firms (that presented annual revenues of a million dollars or less) on a regional context of small cities of the countryside of Brazil. The survey contained questions about marketing, advertising and communication objectives, satisfaction with current communication and advertising strategies, amount spent in communication and the applied communication and advertising strategies.

This paper brings insights to theories of adoption of innovation, specifically in small firms that are in regions away from large cities, being latecomers to the use of the internet as advertising and communication link with their customers. We also contribute to the research on communication, drawing on conclusions of which objectives lead to the use of the internet and the social media for advertising and communication with costumers.

Our results show that small firms use the internet and social media to strengthen their brand image among costumers, as well as to inform customers about new products and services. On the other hand, contrary to our expectations, the objective of achieving competitive advantage against competitors presented a negative impact on the use of the internet.

ADOPTION OF INNOVATION IN SMALL FIRMS

Adoption of innovation is a very important topic in innovation studies, since the choice of innovations is paramount to the success of new technologies and its relationship with the firms. The basis of the adoption and diffusion of innovation literature is rooted on the work of Rogers (1962). Rogers (1962) defended a model where Innovators would be the smallest group, adopting and creating innovation first, then, Early Adopters would adopt innovation, then the Early Majority, the Late Majority and at last there would be some Laggards that would only adopt innovation on the long tail. Years later, Davis et al. (1989) built a new model that, on the other hand, intended to explore the human behaviour on the diffusion of innovations.

Later studies have explored other factors for the adoption of innovation, as the characteristics of the organization and the characteristics of innovation (Frambach and Schillewaert, 2002). The characteristics of the organization, the nature of the innovation and ambient factors seem to be considerably important on the firm's decision of adopting or not an innovation, as well as when it will adopt (Tornatzky

and Fleischer, 1990; Shen et al., 2010). Therefore, when dealing with adoption of innovation, it is necessary to account factors both inside and outside the boundaries firm.

There are several models that intend to explain the adoption of innovation. The model of Tornatzky and Fleischer (1990), for instance, uses the premise of observing the potential of results and comparing with indicators that must be accounted when the firm makes its decision. On the other hand, Frambach and Schillewaert (2002) focus their model on explaining how the perceived characteristics of the innovation, as relative advantage, compatibility, complexity, experimentation, operability and uncertainty lead to the adoption decision. On their model Frambach and Schillewaert (2002) also consider the characteristics of the organization, as structure, innovativeness and strategic posture.

Other models rely on the principle of control, as Shehabuddeen et al. (2006). On their model, Shehabuddeen et al. (2006) use a logical control principle to determine if a company will or will not adopt innovation, associating the selection of technologies to the administrative control principles.

SMALL FIRMS IN BRAZIL

Small firms have a significant role in the Brazilian economy. Official data suggest that, in 2010, there were 3.4 million establishments in Brazil that were considered micro, small or medium-sized enterprises. These firms represent around 99% of Brazilian businesses, contributing with 52.6% of formal employment and about 40% of the income of the entire economy. In this context, small firms have increased their participation in areas considered of intense knowledge, such as information and communication technology, and other areas, such as law, marketing, advertising and auditing (Matos and Arroyo, 2011).

Despite the increasing contribution of small firms to the development of cities and countries around the world, managers and Governments are facing various obstacles in the search for policies that allow favourable conditions for maintenance, development and stabilization of this form of business, due to their fragility in times of crisis and adversities (Souza and

Qualharini, 2007). Most of the time, the micro, small and medium-sized companies have presented certain difficulties in obtaining better prices and advantages, according to Balestrin and Vargas (2003). These difficulties are encountered in the purchase of raw materials and components, the costs of participation in trade fairs, advertising campaigns, recycling and training of the workforce, technological updating, access to lines of credit and financing, rents and costs involved in the export of products.

Another factor that has collaborated significantly for poor performance, and sometimes bankruptcy in small firms, is the lack of planning. Major barriers hinder the business success of small firms without a strategic plan. It is necessary, for small firms, to develop efficient

planning to determine goals, strategies, targets and ways to be able to stay on the market with success (Luna et al., 2014).

One of the ways that small firms have managed to circumvent the difficulties is betting on internet advertising, which opened new opportunities and benefits, bringing the ease and speed of communication dissemination of information resulting (Barrow and Marques, 2010).

The Internet presents itself today as the largest access platform, which currently millions of individuals, in any place or time, access daily (Tapscott and Williams, 2007). In this context, constantly changing, every day new environments and features (EVANS, 2009) such as social networks- Facebook, Youtube, LinkedIn, Twitter, MySpace -that more and more users communicate and share content (Pei et al., 2011; Boyd and Ellison, 2007).

VIRTUAL SOCIAL NETWORKS

Virtual social networks have as the objective of connecting people with their friends and to allow these people to share information with each other and the other users of the service. Many individuals around the world, spend some time out of their day on virtual social networks, even during working hours. In these platforms, individuals create their profiles, communicate, and publish pictures, movies and content or create communities about a particular interest (Fine et al., 2013). The most used virtual social networks are Facebook and Twitter (Alexa, 2011). These networks have allow sharing information on various topics, from news to reviews on products.

The virtual social networks have introduced fundamental changes in the way that internet users behave online. These changes stem from great advantages for businesses that integrate themselves in these virtual social networks.

Some companies recognize these changes and take advantage to promote their activities on virtual social networks, by building links with costumers by participating, creating communities and selling their products online (Evans, 2009). However, this awakening of firms to virtual social networks is a recent reaction (Nice et al., 2013). Companies participating can participate in these communities, building social links and communicating with their customers (Qualman, 2009).

The interest of several companies on social networks is not only a way to promote their products, but also a way to understand the opinions of the public about them, data which previously required the use of expensive polls (Teixeira and Azevedo, 2011) now can be collected by their interaction with the consumers. Firms are now able to collect important data for free and use language and content analysis to better understand their customers.

But companies should not view social networking as just a tendency or an online marketing strategy (Evans, 2009). Companies must look deeper and analyse these new environments with an innovative perspective,

because virtual social networks are a way of mass communication that can build links with millions of potential clients (Valbuena and Campos, 2010; Tapscott and Williams, 2007; Brandão and Marques, 2010;

Constantinides et al, 2008). The adaptation of these new realities imply an innovation on firm strategy of communication (sometimes even in the organizational design).

Virtual social networks have the advantage of allowing low-cost communication, with a large number of consumers, causing the fast expansion of networks, connecting users worldwide (Hempel, 2009; Golder et al., 2007). These virtual social networks allow the connection of people who share common interests (Shirky, 2010; Weber, 2009) without physical contact or without having to meet the same physical space (Kardaras et al., 2003). Therefore, allowing firms to communicate with a very specific target audience.

Virtual social networks are a set of tools that can benefit the company in proportion to their investment. It is firms need to know how to participate, invest time, create content, and increase their network at these services. Therefore, a skilled team of social media experts is ideally an asset for firms to start their operations at virtual social networks (Hawk, 2010), therefore demanding new human resources effort.

Virtual social networks still do not replace traditional media. These new assets can be valuable due to time, speed and durability, audacity, pluralism and diversity; costs, feasibility and effectiveness, relationship, kindness and credibility, but do not fully substitute traditional media (Amezcua, 2012).

METHODS

We used a face-to-face survey with 227 small firms (firms that had less than a million dollars of annual revenue). The survey was conducted in the region of Vale do Itajaí, a valley in the countryside of southern Brazil, nationally famous for tourism and textile industries. The sample followed the characteristics on Table 1. A director or general manager of each firm was required to answer the survey:

Table 1: Sample characteristics Size: % n. Micro (less than 100.000 dollars of annual gross revenue) 27.30% 62 Small (less than 500.000 dollars of annual gross revenue) 38.27% 87 Medium-sized (less than 1.000.000 dollars of annual gross revenue) 34.44% 78 Time of activity: Less than 2 years 3.99% 9 3 to 5 years 8.98% 20 6 to 10 years 13.84% 31 11 to 15 years 11.47% 26 More than 15 years 61.72% 140 Industry: Manufacture 4.43% 10 Commerce 44.70% 101 Services 50.87% 115 Number of employees: Less than 9 33.50% 76 10 a 19 19.90% 45 20 a 49 13.83% 31 50 a 99 9.71% 22 100 or more 23.06% 52 Market of activity: Regional 47.15% 107 National 42.41% 96 International 10.44% 24

Our sample contains a majority of small firms (a second level of classification among Brazilian small firms, between the "micro" classification and the "medium-sized").

Interestingly, most of the firms in our sample have operated for more than 15 years, which was expected, since most of the firms in the Vale do Itajaí region are family businesses that prevail through generations.

The most firms in our sample are from commerce and services industry. Our sample features few firms in manufacturing business, which is mostly dominated by large firms in the region. In our sample, most of the firms had less than nine employees. As expected, most of the firms in the sample operate in the regional context, or national context. A minimum portion have activities in the international market.

The questionnaire used to collect data from these firms was developed by three specialists, approved by a consultant of IBOPE (Instituto Brasileiro de Opinião Pública e Estatística, or Brazilian Institute of Public Opinion and Statistics) and pre-tested with 40 managers. The survey consisted in five questions about the profile of the firm (as shown in Table 1), five questions about the communication and advertising objectives of the firm. Six questions about which and how many virtual social networks the firm used to communicate with their target audience.

Five questions about which type of communication or advertising they used in these social networks, and one question about the frequency of posting and advertising in virtual social networks.

The data was later transformed in 13 variables, five dichotomous that represented the communication objective of the firm, virtual social network intensity, which was calculated by adding the number of virtual social networks that the firms actively used for communication, Virtual Social Network advertising intensity, which represents the frequency per week that the firm uses advertising on virtual social networks, Virtual Social Network frequency which represents the number of posts done in a week at the firm's VSNs.

Finally, communication frequency which represents the overall frequency of communication used by the firm in a week, perspective of investment.

RESULTS

In table 2, we show the descriptive statistics of the sample. It is evident that the larger standard deviations were found to be related to our dependent variables, VSN Intensity, VSN Advertising intensity, VSN frequency.

Table 2

Descriptive statistics

	N	Min.	Max.	Mean	Std. Dev.
Objective: sales	227	0.00	1.00	0.5815	0.49440
Objective: competition	227	0.00	1.00	0.1057	0.30817
Objective: brand strength	227	0.00	1.00	0.5551	0.49806
Objective: recall	227	0.00	1.00	0.3304	0.47140
Objective: inform	227	0.00	1.00	0.2775	0.44877
Virtual Social Network Intensity	227	0.00	4.00	1.4229	1.17006
Virtual Social Network Advertising intensity	227	0.00	4.00	1.4758	1.22405
Virtual Social Network frequency	227	0.00	5.00	2.6388	1.92604

Research data (2015).

We further explore our data in Table 3, showing the distribution (using Kolmogorov-smirnov test), we correlations between variables, as we had no alarmingly determined that non-parametric tests should be used. high correlations, we considered the data adequate for Hence, the following correlations feature a Spearman regression models. As our data did not fit normal correlations test.

Table 3
Correlations (Spearman)

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	Objective: sales	1,000												
2	Objective: competition	,059	1,000											
3	Objective: brand strength	-,149*	-,009	1,000										
4	Objective: recall	,064	,154*	,158*	1,000									
5	Objective: inform	,127	-,053	-,019	,192**	1,000								
6	Virtual Social Network Intensity	,090	-,136*	,165*	,099	,166*	1,000							
7	Virtual Social Network Advertising intensity	,125	-,096	,133*	,172**	,254**	,725**	1,000						
8	Virtual Social Network frequency	,026	-,181**	,158*	,058	,067	,703**	,662**	1,000					
9	Size	,010	,010	,080	,001	,040	,020	,047	-,022	1,000				
10	Time of activity	-,091	-,015	,091	,044	-,017	-,159*	-,094	-,160*	,265**	1,000			
11	Industry	-,118	-,008	,040	,049	,003	-,006	-,025	-,040	-,107	-,057	1,000		
12	N. of Employees	,050	-,029	,144*	,078	,071	,046	,031	-,036	,530**	,352**	-,138*	1,000	
13	Market of activity	,139*	-,076	,060	-,056	,060	,152*	,005	,037	,236**	,049	-,085	,300**	1,000

Research data (2015); Note: * represents $p<0,05$; ** represents $p<0,010$

On the following regression models, we test each of the communication and advertising objectives of the firms, as well as the satisfaction with current advertising. We observe the effect of each of these variables against the intensity of virtual social networks used. Model 1 tests the sole effects of our control variables, model 2 tests the effect of the "raise our sales" objective, model 3 tests the "face our competition" objective, model 4 tests the "strengthen our brand image" objective, model 5 tests the "raise our brand recall" objective, model 6 tests the "inform our audience" objective, model 7 tests the satisfaction with communication, while model 8 tests all the objectives on one multiple regression model.

Table 4
Regression models for VSN intensity

Dependent: VSN intensity	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Objective: sales		0.052					0.063
Objective: competition			-0.124*				-0.136*
Objective: brand strength				0.135*			0.138*
Objective: recall					0.109+		0.084
Objective: inform						0.144*	0.119+
Size	-0.006	-0.005	0.001	-0.003	0.003	-0.006	0.012
Time of activity	-0.241***	-0.234***	-0.242***	-0.245***	-0.242***	-0.233***	-0.232***
Industry	.067	.073	.066	0.058	0.059	0.065	0.056
N. of Employees	0.210*	0.207*	0.205*	0.183	0.188*	0.198*	0.148+
Market of activity	0.106	0.100	0.096	0.106	0.118	0.099	0.091
r^2	0.070	0.068	0.082	0.084	0.078	0.087	0.115
N.	227	227	227	227	227	227	227
Model's anova pvalue	0.001	0.000	0.001	0.000	0.000	0.000	0.000

Research data (2015); Note: * represents $p < 0.05$
** represents $p < 0.010$
*** represents $p < 0.001$

As model 1 presents, our control variables presented significance for the time of activity and for the number of employees. Model 2 failed to prove significance for the objective of raising sales. Model 3, however, presented a negative significant effect, meaning that firms that intend to use communication to face their competitors are less likely to engage in virtual social networks. Model 4 tested the effect of brand strength objective in the use of virtual social networks, and showed a significant positive effect that suggests that firms that intend to develop better brand image will more likely engage in virtual social networks. On table five we present seven models to test specifically which communication objectives lead to the use of paid advertising in virtual social networks. As in Table 4, we first test the isolated control variables in Model 1, in Model 2 we test sales objective, in Model 3 we test the "face the competition" objective, in Model 4 we test the brand strength objective, in Model 5 we test the brand recall objective, in Model 6 we test the "inform costumers" objective, and finally in Model 7 we test the objectives altogether.

Table 5
Regression models for VSN Advertising

Dependent: VSN advertising	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Objective: sales		0.103					0.095
Objective: competition			-0.085				-0.102
Objective: brand strength				0.115+			0.119+
Objective: recall					0.179**		0.131*
Objective: inform						0.242***	0.206**
Size	0.025	0.027	0.030	0.027	0.039	0.025	0.045
Time of activity	-0.173*	-0.159*	-0.174*	-0.176*	-0.175*	-0.160*	-0.155*
Industry	0.013	0.025	0.012	0.006	0.001	0.009	0.003
N. of Employees	0.179*	0.173+	0.176*	0.157	0.143	0.160	0.104
Market of activity	-0.013	-0.024	-0.020	-0.013	0.006	-0.025	-0.028
r^2	0.081	0.027	0.023	0.029	0.048	0.076	0.106
N.	227	227	227	227	227	227	227
Model's anova p-value	0.088	0.063	0.081	0.050	0.010	0.001	0.000

Research data (2015); Note
* represents $p < 0.05$
** represents $p < 0.010$
*** represents $p < 0.001$

Some important differences can be drawn by comparing the models on tables 4 and 5. Contrary to the first table, the competition objective did not present a significant effect against the VSN advertising as dependent variable. Other major difference is that the objective of brand strength shown only significance at 10%, which can only be regarded as partial evidence. On the other hand, the objectives of "raise brand recall" and "inform costumers" presented positive and significant effects. These results indicate that, when the objective is to inform their costumers or to raise brand recall, firms are more likely to use paid advertising in virtual social networks. As robustness check, we built a third table (Table 6) using seven models to test the variables against a second measurement of intensity of virtual social networks use. We used the average frequency that the firm posted content to their virtual social network profiles. The models followed the previous orders.

Table 6
Robustness check models

Dependent: VSN frequency of posts	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Objective: sales		-0.009					0.021
Objective: competition			-0.195**				-0.203**
Objective: brand strength				0.156*			0.153*
Objective: recall					0.052		0.055
Objective: inform						0.051	0.034
Size	-0.022	-0.022	-0.011	-0.019	-0.018	-0.022	-0.003
Time of activity	-0.217**	-0.218*	-0.219**	-0.221*	-0.217**	-0.214**	-0.219*
Industry	0.009	0.008	0.008	-0.001	0.006	0.008	-0.004
N. of Employees	0.129	0.130	0.122	0.098	0.119	0.125	0.076
Market of activity	0.011	0.012	-0.005	0.011	0.017	0.009	-0.004
r^2	0.23	0.019	0.058	0.015	0.021	0.021	0.071
N.	227	227	227	227	227	227	227
Model's anova p-value	0.07	0.117	0.004	0.043	0.096	0.096	0.004

Research data (2015)
* represents $p < 0.05$
** represents $p < 0.010$
*** represents $p < 0.001$

The robustness check models have greatly agreed The only different result was observed in the with our models presented on Table 4. objective to inform customers, which had no effect in

this model. Although, we concluded that the results of table 4 are robust enough for our research.

DISCUSSION

This article contains some important implications to the use of virtual social networks by small firms as communication and advertising tools. We tested the effects of the different possible communication objectives in the use and intensity of use of virtual social networks. Specifically, we intended to analyse if the objectives of sales, competition, brand strength, raise recall and inform customers would influence the intensity of the firm's engagement in virtual social networks, as well as the decision of using advertisements in these virtual social networks.

We investigated these issues surveying 227 firms in Vale do Itajaí, a countryside location in Brazil where textile industries has prospered greatly before the raise of Chinese competition.

Our results point that small firms will engage in virtual social networks when they intend to build brand image or to inform their customers. On the other hand, the objective of facing competition presented a negative impact on the VSN intensity. Our results corroborate the model of Frambach and Schillewaert (2002), as the authors point out that the strategic choices of the firm will impact the adoption of innovation.

These results may be related to the fact that small firms tend to deny the adoption of innovations due to uncertainties (Lin and Chen, 2012), resources and capabilities constraints (Spencer et al., 2012). In this case, it is possible that when firms need to face competitors, they are less likely to engage in virtual social networks because of uncertainties of success on doing so, therefore using traditional media instead.

As for advertising in virtual social networks, our results show that firms that intend to raise brand recall and inform their customers are more likely to use paid advertising in virtual social networks. These results indicate novel contributions to literature since the link between communication objectives and use of virtual social networks (with or without paid ads) have been greatly overlooked by small firms and innovation literature.

CONCLUSIONS

This article presents three important implications. First for small firms, that may better understand the objectives that may lead to engaging in virtual social networks. Therefore, these firms will be more able to draw better planning depending on their objectives. Second, the results here indicated have implications for the virtual social network companies, because our results present a clear explanation about why firms engage in virtual social networks (and using paid advertising on them), as well as what they intend to obtain by doing so.

Our third contribution is directed to the academy, which can use the models here explored for a better understanding of the relationship between communication objectives and the adoption of communication innovations.

Our study contains two basic limitations that can lead to future studies. First, it only covers a small amount of firms in a specific region of Brazil. Therefore, international comparisons must be held with proper caution, since institutional context plays a determinant role for small businesses. This issue can be better explored by studies directed to different regions and different countries.

The second limitation is due to the method using to collect data. Since we only used quantitative data through questionnaire survey, we can only draw conclusions on specific, quantified data. It is widely accepted that the decision making process of firms is not very assertive and takes many factors into account. Future studies could use qualitative research to

better understand the adoption of communication innovation, as virtual social networks.

Furthermore, the adoption of the virtual social networks as an advertising media by small companies shows some tendencies for the future. First, it is evident that small businesses that adopt virtual social networks as advertising venue are indeed following a strategic move, following specific objective motivations. Second, the use of virtual social networks as media as advertising has been debated recently with the rise of apps such as "AdBlock", which blocks any advertising in any website. Apps like this have the potential of changing this scenario, as if popular, they can change the effectiveness of advertising in these websites. The study of virtual social networks as an innovation remains important as they are ever evolving and embracing new kinds of services and advertising, both for companies and consumers.

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