A VISION OF ORKUT´S USERS: STUDYING THIS PHENOMENON THROUGH COGNITIVE ABSORPTION

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ABSTRACT

This study aims to identify the influence that Cognitive Absorption has on the intention of using Orkut. It happens due to the fact that Cognitive Absorption is related to the state of deep involvement users carry with an individual task, performed with the support of Information Technology (IT); it corroborates the study on this virtual community. Therefore, through descriptive research with a quantitative character and with the aid of structural equations, 645 Orkut users were investigated. After the identification of suitability of all indexes tested and fit for both constructs and the final model. The conclusion drawn is that Cognitive Absorption explains the 41% intention of using Orkut, emphasizing that for this kind of IT the Cognitive Absorption seems perfectly adequate to measure the Intention of Use.

Keywords: Cognitive Absorption, Orkut, Information Technology, intention of use, structural equations.

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1. INTRODUCTION

In order to keep itself active in the entrepreneurial environment, according to Gilbert and Cordey-Hayes (1996), the enterprise needs to use tools allied with Information Technology (TI), having its assessment from the users significantly contributed to achieve the competitive advantage (Mathienson; Ryan, 1994). Before such a fact, the acceptance of IT has drawn special attention since the past decade. According to Agarwal; Karahanna (2000) some models have been developed to better understand and explain the attitudes and individual behaviors related to IT, like the Theory of Innovation Diffusion (Brancheau and Wetherbe, 1990; Rogers, 1995); the Technology Acceptance Model (TAM) (Davis, 1989; Davis *et al.*, 1989); amd the Theory of Planned Behavior (Ajzen, 1985, 1988; Ajzen e Madden, 1986), among others.

The Technology Acceptance Model - TAM - is highlighted, developed by Davis (1989), which has been applied to many studies and empirically tested. TAM is basically supported by two constructs: the Perceived Usefulness and Perceived Ease of Use (DAVIS, 1989), which aim to assess the variables that determine or influence the attitudes towards the use of a certain type of technology. This model has the objective of representing the impact on external factors related to IT on those internal individuals with the beliefs, attitudes, and intentions of use (Costa Filho; Pires, 2005).

Davis, Bagozzi and Warshaw (1989) affirm that this model has a practical value in terms of assessment of Information Systems (IS), guiding administrators to reduce the problem of the lack of use of such systems, due to the fact that they cannot improve the performance of the organization if they are not used. The authors affirm that the use of computers depends on the intentions of the people and consider the main determiner of the intentions to use the perception of utility, and the secondary determiner, the perception of using facility (Davis; Bagozzi; Warshaw, 1989). The Perceived Usefulness is influenced by Perceived Ease of Use (Dishaw; Strong, 1999).

This paper will address the acceptance of IT, being the term used with a more general focus. Turban, Rainer, and Potter (2005) define IT as the set of resources of information in an enterprise, its users, and the managerial department that supervises it. It also includes IT infrastructure and other Information systems in an organization. Thus, the use and acceptance in this paper might be related to hardware, nets like Internet and Electronic Trade, and Information Systems. For such, broader use of IT, no difference in terms of type has been pointed out and its acceptance is guaranteed regardless of its type)

Saadé and Bahli (2005) highlight the fact that many studies prove that the perceptions and convictions of the users of IS have a significant influence on its use, but there are still gaps to be analyzed in this area, being important to explore more the theme of cognition allied with the use of IS. However, according to the authors, there is a lack of studies linking the investigation of acceptance of technologies to the holistic experiences of the IT user, being necessary an improvement of the research on the topic.

Before this scenario, Agarwal and Karahanna (2000) developed a model to verify the intention of use of IT that is linked to the variables of the Technology

Acceptance Model (TAM), aggregating the original factors (Perceived Ease of Use and Perceived Usefulness) aspects like the interest in technology from the users and the traits of personality of the individuals that are emphasized when they use the system. In this model, what is highlighted is the construct of Cognitive Absorption, which suggests that the involvement of the IT users contributes to the assessment of IS and for the probable reaction that the user has when using it.

Constructs like this enable the expansion of the considerations regarding the involvement of IS users analyzing intrinsic characteristics of the individual. According to Galluch and Thatcher (2006), the study of Cognitive Absorption is perfectly set in the analysis of intention of use, since the immersion that the net might give the individual and the impact it has brought to the modern society. According to the authors, for many years, internet technology has played an increasing role in the life of people, both personally and professionally. Regarding personal use, communication with friends and family, virtual purchases, researches, and banking management, for instance. The Professional use is emphasized by the use of the net to bring customers and enterprises closer, give information on the organizational environment and management of basic entrepreneurial processes, like purchases and personnel recruiting.

Another important tool of the internet, which has widely contributed to the changes of interpersonal relationships are the virtual communities, like Orkut. This social networking website kept by Google, according to the Folha de Sao Paulo (2008) is the market leader in Brazil, with an average of 16 million accesses every month. Sachitanand and Bhattacharya (2008) affirm that a survey conducted by the newspaper Business Today showed that Orkut is the favorite social networking service for all kinds of groups, ranging from students to executives, who use it to contact friends, look for a job, and even recruit applicants. Due to this fact, this paper brings a new problematic questions of investigation with the following question: "What is the influence of Cognitive Absorption on the intention of using Orkut?".

Given the complexity of this theme and before the social impact Orkut has caused, mainly in Brazil, and also considering that the construct of Cognitive Absorption enables the verification of the immersion level of the individual as a performed task with the support of IT, this study aims to identify the influence that the Cognitive Absorption has on the intention of using Orkut.

It is highlighted that the research assumes an innovative character since the basic construct of the research, Cognitive Absorption, as predictor of use, was little explored in Brazil and the study of intention of using Orkut is also new in this context. According to the newspaper Associations Now (2010), Orkut is among the top-10 most visited websites in Brazil, being the dominant social network in the country (Gallagher, 2010). In addition, Kharif (2007) points out that nowhere else in the world you access to Orkut as much in Brazil. Social networks are the new phenomenon when considering the INTERNET. Orkut is one of the representatives of this phenomenon, so, Brazil is an ideal place to study social networks due to their wide use.

In order to present this study, this paper was structured, besides this introduction, in four more sections. The second and third sections present the theoretical basis for the development of the study. Section four presents the methodology. The fifth section

addresses the results obtained, followed by the final considerations. Finally, the bibliographical references are pointed.

2 COGNITIVE ABSORPTION: WIDENING THE COMPREHENSION ON THE INDIVIDUAL INTENTIONS ON THE USE OF TECHNOLOGICAL INFORMATION

The study on the behavior of IT use, according to Paim and Nehmy (1998), is becoming one of the most relevant topics for professionals and researchers in administration, due to the increasing availability of data enabled by the new technologies. Because of the fundamental role played by IT on the enterprises, Zhang, Li, and Sun (2006) affirm that the identification of technology acceptance by its users and their behavior became essential. Davis, Bagozzi, and Warshaw (1989) also emphasize that to explain and improve the acceptance of the IT user, it is necessary to know the reason why these people accept or reject computers.

Some authors emphasize that it is extremely important to analyze the intrinsic factors that motivate IS users to use them. Relevant studies on the theme, mainly in psychology, are found. An example is the research addressing the enjoyment when using the computer, intrinsic innovation, and emphasis on human affection and emotion of users (Zhang; Li; SUN, 2006). Wau, Saadé and Bahli (2005) affirm that a new holistic focus aims to capture constructs like the individual level of fun while interacting with IS and the way time is perceived in the session, phenomenon known as temporal dissociation.

These experiences have been described as the construct of Cognitive Absorption (CA), in which the variables represent the intrinsic motivation of the IS user, and the behavior is given by himself, demanding experiences of pleasure and satisfaction with the performed activity (Vallerand, 1997). Cognitive Absorption refers to the deep involvement with the individual task that is being executed with IT support, being a personal factor that contributes to the understanding of the individual intentions and the use of technological information (Galluch; Thatcher, 2006). IT, in the context of CA, has been investigated as managerial courses, university websites, internet, e-learning, and electronic commerce, among other systems that use technology as a basis for its work.

The construct of CA might be assessed under the perspective of five dimensions: Temporal Dissociation, Focused Immersion, Elevated Pleasure, Control, and Curiosity (Agarwal and Karahanna, 2000). Temporal Dissociation refers to the lack of capability of the individual to perceive time passing, due to his interaction with IS (Agarwal; Karahanna, 2000). Li and Browne (2006) state that this dimension is related to the level of perception of time going by, in which the person notices the demands of the task. The authors still emphasize that although time is objectively measured by the clock, the experience of time is highly subjective, where the perception of psychological time is a function of the amount of memory used to process information during the activity.

The definition of Focused Immersion is related to the moment at which the

individual shows total immersion in the task he is performing, while other activities are ignored (Agarwal; Karahanna, 2000). For Chen and Injazz (2001), Focused Immersion is the excess of concentration in a limited stimulation field, being related to the notion of absorption.

The dimension characterized by Elevated Pleasure aims to demonstrate the state of pleasure the interaction with IT provides to an individual whenever performing a certain activity (Agarwal and Karahanna, 2000). In this dimension there is absorption and capture of pleasure and fun the user feels manipulating a system.

Agarwal and Karahanna (2000) affirm that the perception of the individual "in charge" of the system and able to perform another activity without being "stuck" to it is called Control. Soule, Shell, and Kleen (2003) emphasize that a high level of perception of control contributes to increase the "addiction" to access it.

The fifth dimension refers to Curiosity, which might be influenced by the reach the experience allows, generating a cognitive curiosity in the individual (Agarwal; KARAHANNA, 2000). Loewenstein (1994) says that Curiosity is a motivation intrinsic to the user, which reflects the desire to obtain information and passion to learn.

Agarwal and Karahanna (2000) also refer to what determines the individual experience of Cognitive Absorption, citing "Vivacity" and "Personal Innovation". Vivacity was defined by Webster and Martocchio (1992) as the degree of a spontaneous action when the user is using a technologic system, and thus it may be a signifying influence in achieving CA. Thus, this study seeks to determine whether:

Hypothesis 1: Vivacity has a positive effect on the Cognitive Absorption with IT.

Personal Innovation was described by Agarwal and Prasad (1998) as an individual characteristic that reflects a great will of trying any technology. This way, it is believed that the ones who have an innate tendency to be more innovative with computers will be more inclined to experience CA. Based on these considerations, the Hypothesis 2 says that:

Hypothesis 2: Personal Innovation positively affects Cognitive Absorption.

In relation to Cognitive Absorption, Agarwal and Karahanna (2000) point out that it is expected that it will have a positive influence on the Perceived Ease of Use, due to the five dimensions of which it is composed. While the user experiments with the Temporal Dissociation, he/she imagines him/herself as having a long time to finish his/her task, which influences on the perception of the Perceived Ease of Use of IT. The Focused Immersion suggests that all the attention of the user is focused on the task, reducing the cognitive tension related to the task's performance and making it easier. Concerning Curiosity, the action of interacting with the system creates excitement about the available possibilities in its execution. The sensation of Control over IT decreases the perceived difficulty performing the task. At last, the Elevated Pleasure suggests that the most enjoyable tasks performed in a system are seen as less difficult (AGARWAL; Karahanna, 2000). These findings lead to the construction of Hypotheses 3, 4 and 5.

Hypothesis 3: Cognitive Absorption positively affects the Perceived Usefulness of IT.

Hypothesis 4: Cognitive Absorption positively affects the Intention of Using an

established technology.

Hypothesis 5: Cognitive Absorption positively influences the Accessibility to IT.

The model of CA developed by Agarwal and Karahanna (2000) indicates that Cognitive Absorption is a determining factor in the intention of using IT, as well as its Perceived Ease of Use and Perceived Usefulness, which also influence the intention of use.

The Perceived Ease of Use reflects how easily a single person can interact with a specific system, representing an intrinsic motivation for the interaction with the computer (Davis, 1989). Thus, this study seeks to determine whether:

Hypothesis 6: Accessibility has a positive effect on the Perceived Usefulness of the system.

The Perceived Usefulness is defined as the degree in which the person believes he/she can improve his/her performance at work by using a certain IT (DAVIS, 1989). The author still adds that the Perceived Usefulness has a signifying influence on the use of IS, because one has the conviction that there is a relation between the fact of using and one's performance. Agarwal and Karahanna (2000) affirmed that many studies pointed the significance of the Perceived Ease of Use and the Perceived Usefulness in the intention of use of IT. Based on these considerations, the Hypotheses 7 and 8 indicates that:

Hypothesis 7: Accessibility positively affects the Intention of Using IT.

Hypothesis 8: Perceived Usefulness has a positive effect on the Intention of Using IT.

In the context of this research, Cognitive Absorption will be studied through the involvement of users with the Orkut website. The choice for this hedonic system of entertainment happened due to the fact that users' satisfaction in an online environment is higher than in traditional ones, because of the easiness to obtain information (LIN, 2008). Thus, the verification of the influence the Cognitive Absorption has on the intention of using a certain technology will be easily verified. Besides, virtual communities, according to Beeching (2006), are currently considered as a vital aspect of the internet in this new generation, enabling social interaction and exchange of information among the users of the net. Still, adds the author, many of these communities are original, funny, innovative, revolutionary, and provocative; contributing to visualize the influence of Cognitive Absorption on the intention of use.

According to Van der Heijden (2004), the results generated by models of acceptance in a general way are limited according to the nature of the system the individual uses (utilitarian or hedonic), possibly darkening other beliefs of the user. Wakefield and Whitten (2006) corroborate this statement, emphasizing that other researchers also agree on this topic (Webster; Martocchio, 1992; Agarwal; Karahanna, 2000). Thus, the authors suggest that the analysis on the motivators intrinsic to the individual like Cognitive Absorption and Vivacity might contribute to identify the precedents of the use behavior, mainly when hedonic systems are analyzed, that is, those that are not used for work but for fun, like Orkut, for instance, used in this paper.

3 VIRTUAL COMMUNITIES AND ORKUT: INTERACTING AND SHARING COMMON INTERESTS

The virtual communities, according to Lin (2008) are formed on the internet with the objective of fulfilling the need of communication, information, and entertainment of their members, enabling them to chat, make friends, exchange ideas, and share specific knowledge and topics. Virtual communities, like real communities, bring together in the cyberspace people who share common interests, through communication mediated by computer networks. However, according to Añaña *et al.* (2008), since joining is a choice, members of virtual communities are able to leave them with no warn and with low personal cost. The authors highlight that members join communities because they identify with their purposes and values, enabling virtual communities to considerably influence in the characterization of a person. It is the case, for instance, of Orkut, the most accessed virtual community in Brazil.

15.13 This piece of software, named after its creator, Orkut Buyukokkten, was launched by Google in January 2004, enabling logged users to list friends, form communities, and create a profile where pictures, details of their personality, and description of personal preferences can be posted (Recuero, 2004). This profile, according to Añaña *et al.* (2008) is visible to the other members, who can even visualize the direct connections (friends) and indirect (friends of friends), as well as invite the friends of this person to be part of their personal net. Still, there are many ways of interacting through forums, private and public messages, etc.

According to Kugel (2006), in the New York Times, Orkut is a "cultural phenomenon" in Brazil, with more than 15 million users in the country, considering the fact that only 12 million Brazilians access the internet at home. Sachitanand and Bhattacharya (2008) emphasize that in May, 2008, 54% of Orkut users were Brazilian, followed by Indians 17%. These indexes corroborate the affirmation of Beeching (2006) that Orkut presents in Brazil a "fanatic group of followers". This illustrated scenario also supported the choice of Orkut as the IT of analysis in this research.

4 RESEARCH METHOD

This study, following a quantitative approach, is characterized by the descriptive research which, according to Aaker, Kumar, and Day (2004), has the purpose of obtaining precise information either about a certain aspect of the market or a specific population. Thus, the descriptive research aims at providing the researcher with data from groups, estimating the proportions of certain characteristics and verifying the existence of relations between the variables (Mattar, 1993).

The investigated population was composed of students from a federal university in the countryside of the State of Rio Grande do Sul. The reason for this sample is due to the large proportion of these students who participate in Orkut, taking into consideration that there are approximately 850 communities on Orkut which are related to the institution's name. This way, for having a high number of researched members as

a characteristic, this study will be guided by the survey method, which is used for collecting primary data when we need information on a great number of people (HAIR *et al.*, 2005b). The researched sample reached a total of 645 university students.

The questionnaire used in the survey was based on the validated and presented methodology by Agarwal and Karahanna (2000), passing through a process of translation and reevaluated by two specialists in the area of Information Systems. Still, before the study's implementation, 10 students analyzed the questionnaire and made a few suggestions for improvement, especially regarding the way some issues were described.

4.1 Model of research

The model of research used in this study, following the suggested by Agarwal and Karahanna (2000),   verifies the hypothesis that Cognitive Absorption is a determining factor in the intention of using the IT, as well as its Perceived Usefulness and Perceived Ease of Use, which also influence the intention of use.

 It is highlighted that, in the researched model, 39 questions were used aiming at identifying each one of the 6 constructs already represented in Picture 1, they are: (1) Cognitive Absorption; (2) Perceived Ease of Use; (3)Perceived usefulness; (4) Personal Innovation; (5) Vivacity and; (6) Intention of Use. The five factors (temporal dissociation, focused immersion, pleasure, control and curiosity) which constitute the Cognitive Absorption Construct are composed of a total of 19 variables. However, after the collection of data, these variables were submitted to a confirmatory factor analysis, making it possible to verify the mentioned factors. After this verification, each of the five factors were considered a a variable pertaining to the Cognitive Absorption construct, according to the methodology used by Agarwal and Karahanna (2000), with the purpose of enabling the analysis of existing relations among the constructs of the model. Because of this, we see in Picture 1 a slight different representation of data. It should be noted that, as these constructs were presented in the literature review, in this section they are just described.

The other constructs were composed directly of the other highlighted variables, considering that the factors of Accessibility (FAC), Perceived Usefulness (Util), and Personal Innovation (Ino) are composed of 4 variables each. The Vivacity (Viva) factor is composed of 5 variables and the Intention of Use (Int) factor is constituted of 3 variables.

Picture 1 – Composition of Variables

Construct/Factor		Variab. Code	Variable
Cognitive Absorption (AC)	Temporal Dissociation	Dis	Sometimes, I lose control of time when I am visiting ORKUT.
		Dis	Time flies when I am visiting ORKUT.
		Dis	Many times, when I am accessing ORKUT, I end up spending more time than I had planned.
		Dis	I frequently spend more time on ORKUT than I had intended.
	Focused Immersion	Imer	While I am visiting ORKUT, I do not perform any other activity.
		Imer	I keep focused on ORKUT while surfing the WEB.
		Imer	When I use the tools of ORKUT, I keep immersed in this activity.
		Imer	When I am surfing ORKUT, I get distracted by other things easily.
		Imer	When I am visiting ORKUT, my attention is not easily diverted.
	Pleasure	Praz	I have fun when I am visiting ORKUT.
		Praz	Using ORKUT gives me a lot of distraction.
		Praz	I enjoy the moment using ORKUT.
		Praz	Using ORKUT is boring.
	Control	Cont	When I use ORKUT, I feel in control of the situation.
		Cont	I feel that I do not have any control over my interaction with ORKUT.
		Cont	When I am visiting ORKUT, I believe to have higher control over my knowledge of information science.
	Curiosity	Curi	Using ORKUT increases my curiosity.
		Curi	I become curious using ORKUT.
		Curi	Using ORKUT awakens my imagination.

Accessibility(FAC)	Fa1	Learning to deal with ORKUT was easy for me.
	Fa2	I find it easy to use the tools of ORKUT to perform my tasks.
	Fa3	It was easy to get skills using ORKUT.
	Fa4	In a general way, I think ORKUT is easy to be used.
Perceived Usefulness (Util)	Util1	Using ORKUT develops my academic performance.
	Util2	Using ORKUT increases my productivity at school.
	Util3	I find ORKUT useful for my academic activities.
	Util4	Using ORKUT increases my productivity in a general way.
Personal Innovation (Ino)	Ino1	If I hear something about a new piece of information technology, I find ways to try it right away.
	Ino2	I hesitate to try new technologies.
	Ino3	Among my friends, I am always the first to try new technologies.
	Ino4	I like to experiment with new technologies.
Vivacity (Viva)	Viv1	When I am using ORKUT, I am spontaneous.
	Viv2	When I am using ORKUT, I am imaginative.
	Viv3	When I am using ORKUT, I am flexible.
	Viv4	When I am using ORKUT, I am creative.
	Viv5	When I am using ORKUT, I am playful.
Intention of Use (Int)	Int1	I plan to use ORKUT in the future.
	Int2	I have the intention of using ORKUT in the future.
	Int3	I expect my use of ORKUT to continue in the future.

It is still worth pointing out that Agarwal and Karahanna (2000), besides these 6 constructs, shown in Picture 2, added to the model of the construct of Self-Efficiency, an individual characteristic that reflects one's confidence in performing a specific task. However, as the authors pointed out, this construct only influences the Perceived Accessibility, and it does not modify Cognitive Absorption, the factor focused on this study. Thus, it was decided not to measure the Self-Efficiency construct, the Model of Cognitive Absorption adapted from Agarwal and Karahanna (2000), as a predictor of the Intention of Use of IS presented in Picture 2.

It is still worth saying that Agarwal and Karahanna (2000), besides these 6 constructs, shown in Picture 2, added to the model the construct of Self-Efficiency, an individual characteristic that reflects one's confidence in performing a specific task. However, as the authors pointed out, this construct only influences the Perceived Ease of Use, and it does not modify Cognitive Absorption, the factor focused on this study. Thus, it was decided not to measure the Self-Efficiency construct, the Model of Cognitive Absorption being adapted from Agarwal and Karahanna (2000), as a predictor of the Intention of Use of IS presented in Picture 2 and already discussed in section 2.

Picture 2 - Model of Cognitive Absorption as a predictor of the Intention of use of the IS
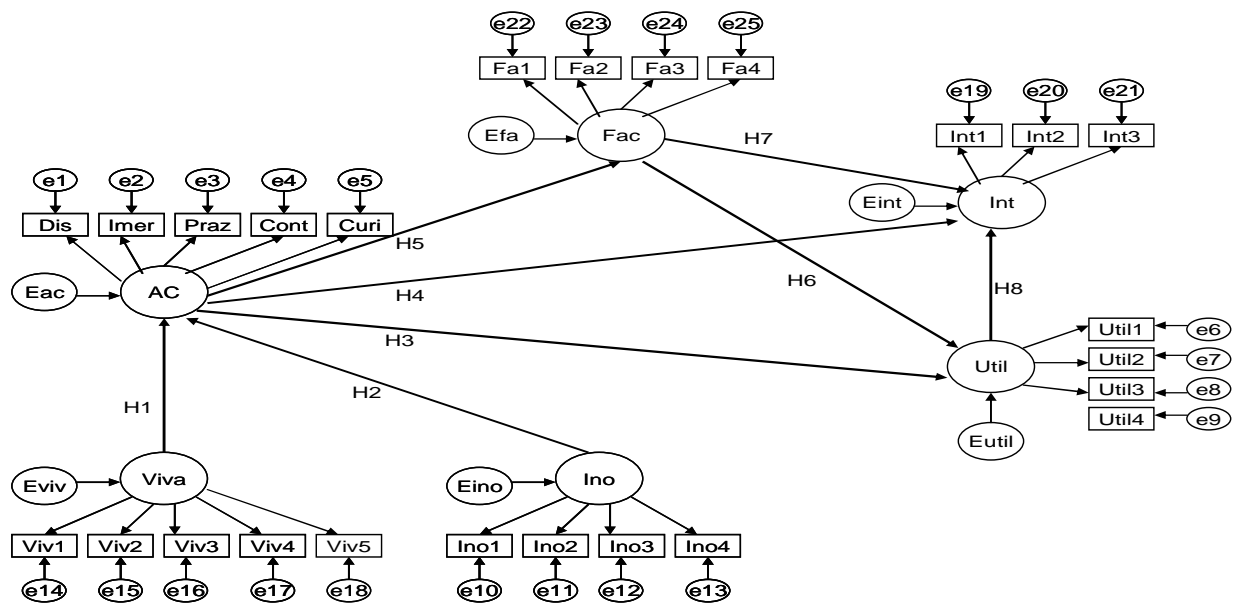
Source: adapted from Agarwal and Karahanna (2000)

As it can be observed, the model of research indicates the existence of simultaneous dependency relations, making it necessary the use of structural equation modeling (SEM), presented by Hair *et al.* (2005a) as a useful technique when dependent variables become independent in subsequent relations of dependency. Moreover, Chin (1998) states that SEM presents better results than the first generation techniques (multiple regressions, for example) in the identification of relations, due to the higher flexibility that the researcher has in the interaction between theory and data.

The result analysis was realized in two steps: the first step involved the Confirmatory Factor Analysis (CFA) to the construction of the measuring model. Afterwards, the relations among the factors were evaluated, indicated by the hypotheses which constitute the structural model (Anderson; Gerbing, 1998).

Hair *et al.* (2005a) show that in the CFA the variables which describe each construct are specified by the researcher, and it is used in the assessment of reliability and validity of constructs. Reliability indicates the degree of internal consistency among the multiple indicatives of a construct, referring to the extension in which an established measure instrument produces coherent results after many measurements (Schumacker; Lomax, 1996), and validity refers to the extension in which the measurements define a certain construct (Churchill, 1979). The assessment of the construct reliability was realized through the calculation of Extracted Variance and Reliability, which must reach values equal to or higher than 0.7 and 0.5 respectively so that the construct can be considered trustworthy (Hair *et al.*, 2005a).

The structural model evaluates the relations between factors and groups of hypotheses. This step involves the absolute and comparative measurements of adjustment. The absolute measurements of adjustment evaluate the degree in which the model predicts the matrix of covariance or the observed correlation (Kline, 1998). One of the adjustment absolute measurements is the x^2 (chi-square), which evaluates the significance of differences between the observed matrix and the estimated matrix (HAIR *et al.*, 2005a). The expected is to find a non significant chi-square ($x^2>0.05$), indicating that the data are adjusted to the model (Schumacker; Lomax, 1996). To reduce the sensibility of this test to the size of the sample, some researchers divide the chi-square value by the degrees of freedom, and the values equal to or lower than 5 are acceptable (Pedhazur; Schmelkin, 1991). Still, we have to evaluate the measurements of Root Mean Square Error of Approximation (RMSEA) which must present values lower to 0.08 and the Goodness-of-fit (GFI) which could vary from 0, predicting a bad adjustment, to 1, perfect adjustment, considering the values higher than 0.9 very good (Kline, 1998).

The comparative measurements of adjustment compare the proposed model with the null model, and they enclose the following indexes: Comparative Fit Index (CFI), Normed Fit Index (NFI) and Tucker-Lewis Index or Non-Normed Fit Index (NNFI), which must present values higher than 0.9. For the data analysis it was used as a support the statistic pack SPSS and the software for structural equation modeling AMOS™.

5 RESULT ANALYSIS

The sample used in the research has been composed by 645 university students, 68.9% between 19 and 24 years of age, corroborating the information given by the Orkut website (2008) that 61.41% of its users are between 18 and 25 years old. It is still highlighted the fact that 38.9% of the researched students have been users of the website for 2 or 3 years. Besides, 54.1% of the sample uses the internet more than once a day. With the same frequency, 34.6% access their emails. Such information enables an inference that the university student is frequently using technological resources, being

this sample valid to the purposes of this research.

Initially, the reliability indexes, measured through Cronbach's alpha, temporal dissociation factor, focused immersion, pleasure, control and curiosity, in the construct of Cognitive Absorption were satisfactory, that is, higher than 0.6, indicating the internal consistency of the factors (Malhotra, 2006). It is important to mention such factors, since they were transformed into variables of the construct of Cognitive Absorption.

After this procedure, the next step is the individual validation of the studied constructs of the model. Through a confirmatory factor analysis, it was possible to confirm the variables composing each factor. Table 1 presents the results of the indexes of model adjustment and reliability.

Table 1 – Final result of the adjustment indexes

Adjustment Indexes	Constructs					
	AC	FAC	Util	Viva	Ino	Int
Qui-square	22,634	5,939	3,700	11,505	2,661	4,000
	p=0,000	p=0,051	p=0,54	p=0,021	p=0,264	p=0,135
Freedom Levels	5,000	2,000	1,000	4,000	2,000	2,000
GFI	0,987	0,995	0,997	0,993	0,998	0,997
CFI	0,971	0,996	0,998	0,994	0,999	0,999
NFI	0,964	0,995	0,998	0,991	0,995	0,998
NNFI	0,942	0,989	0,991	0,986	0,996	0,997
RMSEA	0,074	0,055	0,065	0,054	0,023	0,039
Extracted Variance	0,740	0,850	0,820	0,800	0,730	0,950
Reliability	0,37	0,58	0,5	0,42	0,41	0,35
Cronbach's alpha	0,7225	0,8378	0,8951	0,8605	0,7214	0,934

The composition of the factors came from the model originally proposed. Based on that, it was calculated the initial adjustment indexes, extracted variance, level of reliability, and Cronbach's alpha. The option for the calculation of Cronbach's alpha, for each of the studied constructs happened because of the fact that the reliability indexes have values below the expected. Thus, Baumgartner and Homburg (1996) suggest calculating the alpha to verify the reliability of the construct. All the constructs have satisfactory values. It is emphasized that the values presented in Table 1 are representative of the final constructs, since the initial constructs of Vivacity (Viva) and Perceived Usefulness (Util) needed some adjustments, as suggested by the analysis software. The other ones did not require any adjustment, having all the analysis indexes satisfactory.

In the construct Vivacity (Viva), initially, the RMSEA was 0.123, value higher than the one considered adequate. This way, the relationship between the variables Viva.5 and Viva.4 was included, where the first has a relationship with the second.. Considering such a change, all the adjustment indexes were within acceptable limits.

The initial construct of the Perceived Usefulness (Util) presented a significant qui-square, and the relation between those values and the levels of freedom are higher than acceptable. Thus, the model requires adjustments. Still, the NNFI was 0.845 and

the RMSEA 0.262, indexes considered unsatisfactory. It was then included a variable relation from Util3 to Util4, where observed significant improvements in the indexes of the model were observed (Table 1).

It is emphasized that no variables exclusions wrtr necessary (Table 1), since the Cronbach's Alphas were acceptable for all the analyzed factors. Considering these explanations, the standard coefficient and the variable significance forming the final constructs are shown(Table 2).

Table 2 – Standard coefficients and significance

Construct	variables	standard coefficient	Z	Construct	Variables	Standard Coefficient	Z
AC	Dis	0,691	1	Util	Util1	0,879	1
	Imer	0,609	12,168**		Util2	0,958	31,424**
	Praz	0,626	11,848**		Util3	0,662	19,508**
	Cont	0,447	8,948**		Util4	0,51	13,732**
	Curi	0,624	11,999**	Viv	Viv1	0,789	1
FAC	Fa1	0,726	1		Viv2	0,691	17,558**
	Fa2	0,616	14,68**		Viv3	0,861	21,274**
	Fa3	0,866	19,383**		Viv4	0,55	12,576**
	Fa4	0,818	19,088**		Viv5	0,549	13,293**
Ino	Ino1	0,767	1	Int	Int1	0,926	1
	Ino2	0,467	9,952**		Int2	0,871	35,06**
	Ino3	0,633	12,004**		Int3	0,940	31,27**
	Ino4	0,654	12,34**				

[1] value of Z was not calculated since the parameter had been set in 1.0.

**significant at the level of 1%.

After performing the individual validation of the constructs, the hypotheses of the study were assessed. It was considered the idea of model improvement, based on the suggestions of the software AMOS™. This way, it was included a new relation between the factor Vivacity and the factor Innovation, which was not in the original model of Agarwal and Karakanna (2000). Agarwal, Sambamurthy and Stair (1997) affirm that in the study of Agarwal and Prasad (1996) a positive correlation between these constructs was found; however, it was very low, generating verification suggestions of the veracity of such a relation. Agarwal, Sambamurthy, and Stair (1997) emphasize that this relation might be possible since the individuals tend more to try new technologies, and they also tend to interact with them in a very spontaneous way – characterizing the construct of Vivacity – perceiving it as being easily used.

After this procedure, the improved final model presented the levels of adjustment observed in Table 3. In addition, we tested two alternative models, (1) a model designed with second order variables, composed of temporal dissociation, focused immersion, pleasure, curiosity and control; and another model (2) with these five independent dimensions, ignoring the uni-dimensionality of AC, working on it as a multi-dimensional construct. The test of alternative models aims to identify whether there are indices for the best fit of the model, indicating changes in it.

Table 3 – Indexes of adjustment of the improved model

Index	Proposed model	Second order model	Five dimension model
	Value	**Value**	**Value**
Qui-square	667,039 p(0,000)	1765,361 p(0,000)	1983,567 p(0,000)
Levels of freedom	264	686	671
GFI - Goodness of Fit	0,922	0,870	0,852
CFI - Comparative Fit Index	0,948	0,908	0,888
NFI - Normed Fit index	0,917	0, 858	0,840
NNFI - Non Normed Fit Index	0,941	0,900	0,976
RMSEA - Root Mean Squared Error of Aproximation	0,049	0,049	0,055

It is perceived that the final model had a significant qui-square, it is then performed the relation between the qui-square and the levels of freedom, presenting ratio lower than 5.00 (2.5), an acceptable value according to Pedhazur and Schmelkin (1991). All the other adjustment indexes present satisfactory results. The two alternative models tested, the second order and the five dimensions, presented fit indexes lower than the proposed model, indicating its consistency. Thus, the standard coefficients are presented, as well as the levels of significance of each analyzed hypothesis of the proposed model (Table 4).

Table 4 – Standard coefficient and hypotheses significance

Hypothes	Relation			Coef.	Z	
H1	Viv.	--->	AC	0,654	7,912	***
H2	Ino.	--->	AC	0,197	3,527	***
H3	AC	--->	Util	0,521	7,559	***
H4	AC	--->	Int.	0,413	5,849	***
H5	AC	--->	FAC	0,228	4,833	***
H6	FAC	--->	Util.	-0,235	-3,902	***
H7	FAC	--->	Int.	0,202	3,374	***
H8	Util.	--->	Int.	0,171	3,859	***

***,significant at level 1%.

The relation between Vivacity and Personal Innovation, added to the initial model had standard coefficient of 0.522 and Z equals to 7.254***. Before these results, the final model of this research is shown in Picture 3.

Picture 3 – Improved final model
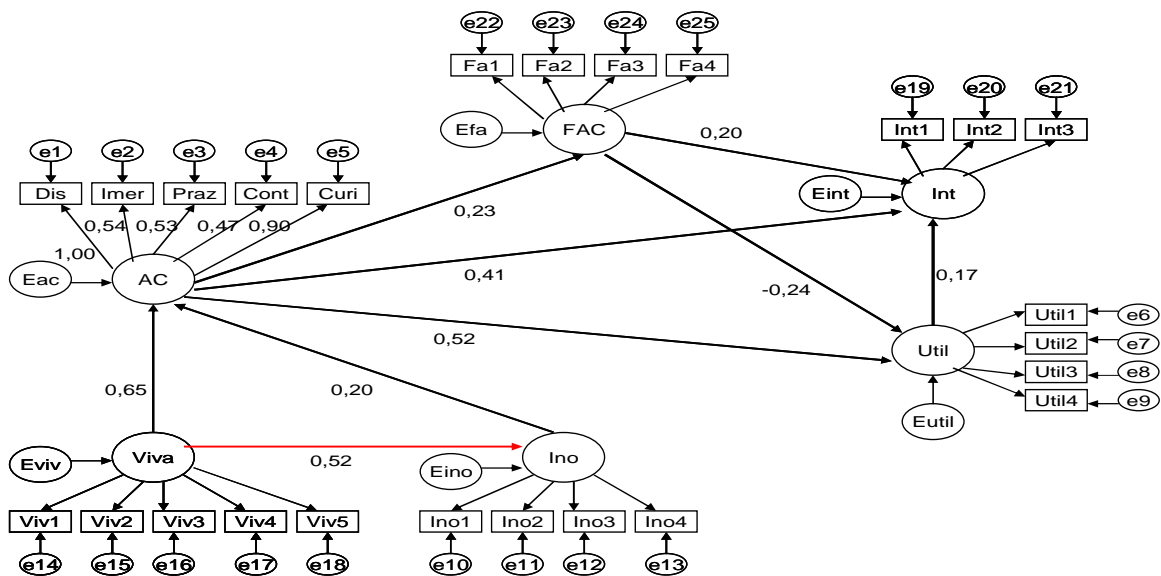
Picture 3 shows that Cognitive Absorption explains 41 % in the intention of use of an established technology, in this research, Orkut. Cognitive Absorption had an explanation index higher than the other two constructs, predictors of the intention of use - Perceived Usefulness and Accessibility – suggesting that this is an adequate construct to measure the intention of use of IT. Another interesting aspect observed is that, among the variables that influence Cognitive Absorption, Curiosity presented a very high level, of 0.90, which is the most important aspect for the formation of the construct. This result is probably from the investigated system, Orkut.

The relation between the constructs Vivacity and Personal Innovation was very significant (0.52), as well as the one between Cognitive Absorption and Perceived Usefulness (0.52). This relation had not been found in the research of Agarwal and Karahanna (2000), and rises in this research as a motivation for new studies since they address new behavioral aspects of IT users. Another fact that corroborates this statement is the fact that the relation between the construct Vivacity and Cognitive Absorption was 0.65, the highest identified in the studied model.

Before the results presented in Picture 3, it was established a summary table (Table 5) that presents the hypotheses tested and their acceptance or rejection. All the hypotheses were significant at level 1%.

Table 5 – Summary of the tested hypotheses

Hypotheses	Relation	supported	Hypotheses	Relation	Supported
H1	Viv.→ AC	Yes	H5	AC →FAC	Yes
H2	Ino. →AC	Yes	H6	FAC →Util.	No
H3	AC →Util.	Yes	H7	FAC→Int.	Yes
H4	AC →Int.	Yes	H8	Útil. →Int.	Yes

It is possible to notice through Table 5 that only H6 has not been supported, since it was found, in this research, a negative relation between Perceived Ease of Use and Perceived usefulness. These results show that there is no relation between intrinsic motivations to interact on Orkut with the performance improvement of the conducted activity. 20 52

6 CONCLUSIONS

This paper aimed to identify the influence that Cognitive Absorption has on the intention of using Orkut. It is interesting to highlight that, according to Morais and Rocha (2005), Brazilians are the majority of participants on Orkut due to the idea of cordiality that this system transmits. Thus, according to the authors, there is a relation between the huge participation in communities and the great number of 'friendship' connections in the website, as being an expression of the 'cordial man', who is also hospitable, and friendly; characteristics usually attributed to Brazilians.

Initially, the aim was to search for the reliability of the five factors composing the construct of Cognitive Absorption: Temporal Dissociation, Focused Immersion, Pleasure, Control, and Curiosity. Through Cronbach's alpha, it was impossible to prove the consistency of each of these factors, since all of them had acceptable levels, that is, higher than 0.6, indicating the internal consistency of the factors (MALHOTRA, 2006). These factors were transformed into the variables responsible for the explanation of the construct of Cognitive Absorption. This way, through the analysis of the structural equations, it was identified that the variable curiosity presented a higher explanation index (0.9), indicating that great part of the intrinsic motivation of the Orkut user was due to this variable. Such a result is corroborated by Ibrahim (2008), who affirms that one of the reasons for the success of the virtual communities is the fact that it is possible to visualize a person's profile and get information on them without being identified.

Other relations were also tested in order to verify the research hypotheses. Thus, 7 out of 8 tested hypotheses were proved, being the only hypothesis rejected (H6) due to the negative relation observed between Perceived Ease of Use and Perceived

Usefulness, which according to the model of Agarwal and Karahanna (2000) should be positive. A significant and considerable relation was also found (0.52), not cited in the research, between the constructs Vivacity and Personal Innovation. Since this relation had not been found in the research of Agarwal and Karahanna (2000), it comes in this research to encourage new studies, since it had also been identified by Agarwal and Prasad (1996 apud Agarwal; Sambamurthy; Stair, 1997). All the adjustment indexes tested, both for the constructs and the model were satisfactory.

For a system like Orkut, Cognitive Absorption showed to be perfectly adequate to measure the Intention of Use, since CA explains 41% of the intention of using this kind of IT. The Perceived Usefulness does not explain much of the Intention of Use, it is necessary to consider that young people using Orkut do not perceive this relationship. The Perceived Ease of Use, factor that should explain better the intention of use, also does not appear as very relevant, Perceived Ease of Use is inherent to surfing the internet, which is not a predictor of the Intention of using this IT.

Due to the same above-mentioned reason, Perceived Ease of Use is inherent to the young people and not an explanation for another behavior. This way, the relationship between Perceived Ease of Use and Perceived Usefulness showed to be inversely proportional (negative). Perceived Ease of Use does not explain the Perceived Usefulness of Orkut, whereas the model shows a curiosity, the Perceived Usefulness of Orkut has a standard coefficient of 0.521 in the relation with Cognitive Absorption, while the same CA presents a standard coefficient of only 0.228 in the relation with Perceived Ease of Use. Thus, the previous discussion is back: accessibility is not explained in a system like Orkut by the nature of the user and by the function they give to this kind of IT.

> A criticism of Cognitive Absorption is the fact that it does not use variables that have much meaning for organizational systems, as transactions processing or new ERP systems, since they are not more used because of the necessity of the organization than any other intention of the user. Thus, the inclusion of the factor Cognitive Absorption, a central object to this study, does not improve this matter, since it has as precedent constructs the temporal dissociation, focused immersion, pleasure, control, and curiosity, which are more related to the systems with a hedonic character than to the management systems. Still, we didn not test the intention of use Orkut with non-users of the site, which can be considered a limitation of the study because the construct is relevant to those who do not use this technology. However, we note that the non-users have many other constructs that could not be evaluated; evaluating the two groups *users and non-users) in the same study is risky."

As a suggestion for future research, the investigation of other types of IT and IS could be presented, in order to broaden the research on Cognitive Absorption, mainly in the national context, to which the model brings an innovative approach for the area of IS. Also, it is emphasized again the relationship found in this research between the constructs Vivacity and Personal Innovation, to be investigated in a deeper way, in order to identify the reliability of such an influence.

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