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Human-Technology Interactions: Roles and Challenges

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Human-Technology Interactions: Roles and Challenges

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ABSTRACT

The proliferation of Information and Communication Technologies (ICT) with particular emphasis on internet have been rapidly adapted to tourism, where new opportunities for design and marketing strategies for destinations are being explored in both physical and virtual environments. Furthermore, the process of designing strong brands and facilitating positive and memorable experiences are central activities concerning destinations aiming to become more competitive. Accordingly, Destinations Marketing Organizations (DMOs) are now exploring ICT and new forms of human interactions with a view to offer new opportunities for visitors to engage in the process of co-creating enhanced destination experiences in a technology-based environment. Considering that ICT both contribute to the process of designing innovative destination experiences and support enhanced individuals' experiences before, during and after the trip, the purpose of this paper is to explore the role of ICT in the marketing and brand design of destination experiences.

Keywords: Tourist Experiences, Destinations Experiences Marketing, Brand Design, ICT

JEL Classification: M310

1. INTRODUCTION

The leisure and tourism sectors are witnessing a scenario where the process of providing the conditions for positive and memorable experiences to emerge is the focus within a competitive market (Andersson, 2007; Ellis and Rossman, 2008; Morgan, Lugosi, and Ritchie, 2010; Mossberg, 2007; Pine and Gilmore, 1998; Schmidt, 1999; Walls, Okumus, Wang, and Kwun, 2011). Along with changes in contemporary societies, continuous transformations in tourism, both in scale and scope, have led tourist experiences to become more complex and varied in their forms (Sharpley and Stone, 2011). Hence, Destination Marketing Organizations (DMOs) are increasingly being called upon to find innovative ways to make a difference considering the proliferation of destination choices (Cooper and Wahab, 2001; Stamboulis and Skayannis, 2003; Pike, 2004) and taking full advantage of the e-commerce opportunities existing in the globalized and digitized world (Hyun, Lee, and Hu, 2009; Neuhofer, Buhalis, and Ladkin, 2012). Thus, designing strong brands and facilitating rich experiences are central activities concerning destinations (Hyun and Cai, 2009; Hyun, Wells, and Huh, 2003; Morgan, Elbe, and de Esteban Curiel, 2009).

Indeed, new trends in technology and changes in software and internet infrastructures, as well as in human participatory culture involved in virtual environments, altered not only the ways people find information about destinations and purchase travel products but also how they experience, communicate and perceive destinations (Buhalis, 2003; Buhalis and

Jun, 2011; Neuhofer *et al*., 2012; Poon, 1993; Tussyadiah and Fesenmaier, 2009; Xiang and Gretzel, 2010). Accordingly, ICT with particular emphasis on the internet have been rapidly adapted to the tourism industry, where new opportunities for design and online marketing strategies have been explored (Buhalis and Law, 2008; Hyun and Cai, 2009). Researchers stress that the challenges for destination marketing management therefore involve the transformation of the designed experience offerings into personalized experiences (Volo, 2009), incorporating the needs and interest of all stakeholders in a combined product offer (Hyun *et al.*, 2003; Manente and Minghetti, 2006; Pike, 2004).

The profound transformations in society resulting from the evolution of ICT led to innovative consumption experiences, which bring together physical and virtual worlds, boosting the involvement of consumers both in the consumption and production processes (Beça, Raposo, and Figueiredo, 2014; Ritzer and Jurgenson, 2010). In fact, individuals are no longer just consumers of contents but they also create and share information, due to the use of mobile devices on a daily basis, integrating the web 2.0 paradigm (Hyun *et al*., 2009). Hence, the internet is now seen as a source of information, user generated content and a platform for interaction (Doolin, Burgess, and Cooper, 2002; Neuhofer *et al*., 2012). In this sense, the proliferation of web 2.0 and social media drastically changed the marketing and design approaches for tourism (Buhalis and Law, 2008; Hyun and Cai, 2009). In this context, multi-sensory stimuli are being explored by destinations and by leisure and tourist organizations, both in physical and virtual environments, by using the potential of new technologies in the different moments of travel (Agapito, Mendes, and Valle, 2013; Gretzel and Fesenmaier, 2003; Neuhofer *et al*., 2012). This idea contributes to the process of enhancing destination experiences, resulting in more positive outcomes (Cutler and Carmichael, 2010; Gretzel and Tazim, 2009; Kastenholz, Carneiro, and Marques, 2012; Tung and Ritchie, 2011).

By posing technology as an extension of human senses (Jütte, 2005; Rodaway, 1994), which contributes, on one hand, to the process of designing and marketing innovative destination experiences and, on the other hand, to enhancing individuals' experiences before, during and after the trip, the purpose of this paper is to explore the role of ICT in the marketing and brand design of destination experiences using a theoretical approach and short case studies.

2. ICT AND MARKETING CONSUMPTION EXPERIENCES IN TOURISM

Tourism studies have acknowledged the consumption of experiences as a key research topic (Woodside *et al*., 2000) since destinations are composite products (places, people and activities) which generate multiple experiences in their consumption, with tourists being considered as consumers (Buhalis, 2000; Otto and Ritchie, 1996; Oh, Fiore, and Jeoung, 2007; Quan and Wang, 2004; Williams, 2006; Woodside *et al.,* 2000). Experiences are recognized as a distinct economic offer, occupying a central role in society and holding a premium position, after commodities, goods and services (Pine and Gilmore, 1998). Indeed, current research shows consumers' preferences for experiences, hence to be engaged, when interacting with products and services (Holbrook, 1999; Holbrook and Hirschman, 1982; Jensen, 1999). In the context of tourism, the concept of *experiencescape* (Mossberg, 2007) constitutes the tourists' global consumption, which includes a destination as the consumption experience environment. Therefore, knowing how destinations and organizations can create conditions to enhance tourists' global experiences is crucial in order to develop effective marketing management strategies (Morgan, Elbe, and de Esteban Curiel, 2009; Mossberg, 2007; Ritchie and Hudson, 2009; Volo, 2009; Tung and Ritchie, 2011).

On one hand, tourist experiences are characterized for being of a multi-phasic nature, comprising the phases of anticipation, travel to site, on-site activity, return home and recollection (Cutler and Carmichael, 2010). On the other hand, consumers are increasingly more willing to be engaged and to co-create their own experiences in a quest of personal growth and value (Binkhorst and Den Dekker, 2009; Neuhofer *et al*., 2012; Prahalad and Ramaswamy, 2004). These aspects result in increasing opportunities for the proliferation of technology-mediated destination experiences (Gretzel and Tazim 2009; Tussyadiah and Fesenmaier, 2009). Against this background, the challenges for destination marketing management involve the design of experience offerings into personalized experiences (Volo, 2009). With the aim to enhance tourist experiences, resulting in more positive responses, virtual environments are being considered, in addition to physical environments, with respect to the optimization of the potential of ICT in the different moments of travel (Neuhofer *et al*., 2012).

Indeed, changes in society resulting from the development of new technologies altered the way in which the travel is planned (Buhalis and Jun, 2011; Hyun *et al*., 2009) and the tourism offer is designed (Mossberg, 2007; Prahalad and Ramaswamy, 2004), managed, experienced (Buhalis and Law, 2008; Pine and Gilmore, 1998), branded and communicated (Hyun and Cai, 2009). Hence, sensory stimuli (visual, aural, olfactory, gastronomic and tactile) can be managed in both physical and virtual environments thus influencing the perception of the overall tourist experience and the individuals' decision-making processes (Agapito, Valle, Mendes, 2012; Agapito *et al*., 2013; Cho, Wang, and Fesenmaier, 2002; Hyun and Cai, 2009). Cho *et al.* (2002:3) define virtual experience as ''an experience in a virtual environment using a computer mediated environment and is based upon the concept of telepresence'', i.e., a mediated environment, characterized by interactiveness - the degree to which the use of a medium can influence the form or content - and vividness - the ability to produce a sensorially rich mediated environment (Steuer, 1992). Accordingly, the sense of being in a mediated environment from interactive media, such as 3D virtual environments, should be richer than the experience provided by traditional media, and "virtual information can become more credible by improving the level of telepresence that makes consumers feel like having the actual experience" (Hyun and Cai, 2009: 44).

Consequently, new media are rapidly gaining attention in narrating travel experiences (Gretzel, Fesenmaier, Lee, and Tussyadiah, 2011). Location-aware technology are characterized by its relatively low price and availability, such as mobile phones, which are part of daily life and a primary means for communication and information when travelling (Ferreira, Alves, and Quico, 2014a; Hyun *et al*., 2009). The anticipation and recollection stages of tourist experiences, in addition to the in loco activity, are seen as involving specific particularities that influence the type of use of consumer-generated media and mobile technologies by tourists who use them with the purpose of narrating their travel experiences. These forms of contemporary travel writing help tourists to enhance, share and add meaning to their experiences, thus contributing to the process of cognitive and emotional attachment to brands and destinations. Thus, apart from being cultural and social constructions, these stories of encounters with locals, other tourists and places go beyond the gaze, putting together all the bodily experience by including the non-visual senses along with sight (Pan and Ryan, 2009; Gretzel *et al*., 2011).

The process of combining Geographic Information Systems (GIS) and Global Positioning System (GPS) technologies with the internet facilitates ease of access to up-to-date and reliable information, adapted to the different phases of the trip and to the diverse visitors' needs and motivations (Briedenhann and Wickens, 2004; Hyun *et al.*, 2009; Neuhofer *et al*., 2009; Pan and Ryan, 2009; Vaz and Campos, 2013). These forms of initiatives can contribute to enhance the destination experience both to all visitors and residents (Hyun *et*

al., 2009; Kastenholz *et al*., 2012). With this view, some studies point out that traditional forms of communicating the benefits of destinations should be revised, and ICT could assist in promoting destination experiences based not only on visual stimuli and sight-based verbal descriptions but also on non-visual stimuli (Agapito, Valle, and Mendes, 2014; Gretzel and Fesenmaier, 2003; Gretzel *et al.,* 2011; Stamboulis and Skayannis, 2003). Indeed, the process of stimulating the senses is a tool with the potential to trigger intense emotions, thus boosting brand attachment (Gretzel and Fesenmaier, 2003). Collaborative marketing strategies using new technology may result in sensory-based, creative communication events, such as the development of multi-sensory routes addressed at diverse tourist profiles (Briedenhann and Wickens, 2004; Pan and Ryan, 2009) or the use of local gastronomy to promote interactive sensory experiences for tourists (Daugstad, 2008; Quan and Wang, 2004; Sidali, Kastenholz, and Bianchi, 2013; Silkes, Cai, and Lehto, 2013). Accordingly, recent research in tourism suggests the importance of multi-sensory stimuli in the marketing of appealing tourist experiences, resulting as important markers for recollection (Mossberg, 2007; Ooi, 2005; Tung and Ritchie, 2011). This occurs while encouraging responsible tourist experiences with respect to local resources (Agapito *et al.*, 2014; Saxena, Clark, Oliver, and Ilbery, 2007) and accessibility by taking into account impaired people in this process (e.g. visual/hearing impairment, mobility impairment) (Abranja *et al*., 2010; Richards *et al*., 2010; Small *et al.,* 2012).

Within the context of cultural tourism, the impact of technology in museum visits, for example, has been particularly highlighted (Beça, Raposo, and Figueiredo, 2014). Thus, participatory culture and Web 2.0 services are central, named in tourism studies as m-Tourism 2.0 (mobile tourism), which derives from the concept of web 2.0 adapted to tourism (Buhalis, 2003). Accordingly, the use of the internet and mobile and technological devices are being tested and used in museums for enhancing visitor experiences by considering different needs and profiles in the process. For example, Beça *et al.* (2014) developed and tested a prototype device in the Museum of Aveiro (Portugal) that integrates the idea of participatory culture and web 2.0 services aiming to enrich tourist experiences. The idea is to boost all the phases of the experience: visitors can download the application to their mobile phones through the museum website before the visit and have access to contents and comments; during the visit they can explore different sensory-informed content and file information, as well as share comments through web 2.0 services in real time; and, after the visit, visitors have a means to share stories and relive the visit. The development of these types of engines requires participatory sessions with respect to contents, usability and design. Furthermore, the process of exploring m-Tourism 2.0 contributes to word of mouth that can be decisive in the process of choice of places to visit, since it transforms a merely contemplative visit into an interactive and participative one (Beça *et al*., 2014; Litvin, Goldsmith, and Pan, 2008). Indeed, online reviews (e.g., travel blogs and platforms, such as Booking.com or Trip Advisor) have been posed as reliable and relevant source of information for travelers, with possible implications in their decision-making processes (Lopes, Abrantes, and Kastenholz, 2013; Sparks and Browning, 2011).

2.1 Gamification: virtual destination experiences

Gamification is a recent global trend in tourism, which uses game design elements in non-game contexts and is characterized as a "process of game-thinking and game mechanics to engage users and solve problems" (Zichermann and Cunningham, 2011, p.xiv). In the context of tourism, the use of games can be related to location-based online or offline mobile games, aiming to lead to a rise in brand awareness with marketing purposes (Xu, Tian, Buhalis, and Weber, 2013). Some projects of location based transmedia storytelling, using diverse communication platforms, have been recently released. They connect storytelling

and games along with locative media, allowing participants to explore locations (Ferreira *et al.*, 2014a).

The first social platform using GPS was the "Great American GPS Stash Hunt", released in 2000. It is now widely known as Geocaching (Ferreira *et al.*, 2014a), which encloses more than two million active geocachers (geocaching.com). This platform connects both virtual and physical worlds based on the interaction between groups of people and places, and it conveys narrative and sensory-based information. The challenge is to find caches that can be physical or treasure enigmas to solve (Ferreira *et al.*, 2014a; Xu *et al.,* 2013). Some examples of location-based games are: *REXplorer*, which humorously showcases the history and culture of Regensburg, in Germany (Ballagas, Kuntze and Walz, 2008); *WhaiWhai*, which is based on enigmas to solve (http://www.whaiwhai.com/en); and *Strayboots,* which mixes the ideas of scavenger hunt and walking tour (https://www.strayboots.com/). In Portugal, *TravelPlot* (http://www.travelplot.com/en/) explores the mechanic of seeking out a hidden treasure and social networks (Ferreira *et al.*, 2014b), while *Viseu Mobile* (Figure 1) allows visitors to manipulate virtual objects in a real context, using augmented reality by pointing the phone towards the intended focus (http://viseumobile.esenviseu.net/en/).

Figure 1 – Viseu Mobile

Source: http://viseumobile.esenviseu.net/en/

Other types of games are not location-based, functioning more as an advergame that engages specific segments of users while promoting destinations by gaming (Çeltek, 2010). Examples of these are: *Smile Land*, which aims to promote different places in Thailand (Figure 2); *Agent UK*, which was part of the release of the 007 movie *Skyfall* and engaged social media followers of Visit Britain in specific missions; and *Brazil Quest*, a game placed in the host cities of the 2014 World Cup (Ferreira *et al.*, 2014a).

Figure 2 – Smile Land

Source: http://viseumobile.esenviseu.net/en/

2.2 The role of ICT in destinations' brand design and communication

According to Lacerda (2004), people live in a world surrounded by information, structures, services, products, people and buildings with different kinds of messages and meanings - each one with a specific identity. The evolution of technologies, economic changes and globalization dynamics stress the urgency in studying organizations' needs and the way they communicate, with respect to their identity as a resource and its contribution to the recognition and clarification of the messages addressed to the stakeholders and society in general. That is the reason why the process of destination branding is central to communicating a destination's unique identity and to differentiate it from competitors (Govers and Go, 2009).

Indeed, brand identity reflects the contribution of all brand elements (name, symbol, logo and work mark) to the awareness and image of the product (Aaker, 1991; Keller, 1998), which is also the case for destinations (Qu *et al.*, 2011). Furthermore, researchers claim that the concept of visitor experience should be incorporated into the process of branding (Blain, Levy, and Ritchie, 2005) since it "conveys the promise of a memorable travel experience that is uniquely associated with the destination", and it also serves to "consolidate and reinforce the recollection of pleasurable memories of the destination experience" (Ritchie and Ritchie, 1998:103). However the brand not only generates value to the consumer but also to all the stakeholders involved (Govers and Go, 2009). In fact, a marketing approach to tourist experiences of destinations should center on carefully facilitating rich, positive and diversified experiences by achieving balance in preserving endogenous resources, residents' quality of life, tourism providers' benefits and tourists' quality of visit; consequently, it is also aimed at local, sustainable development (Manente and Minghetti, 2006).

Moreover, similar to the process of branding organizations, the process of branding a destination should create links between the destination and their audiences, and it should responsibly incorporate the fast environment mutations existing in society in the process of building the destination identity (Gover and Go, 2009; Olins, 2006). Along with the needs of the product offering, designers have to know "how to move in the collective memory of people, their culture, behaviors, emotions and needs, to understand their history, desires and dreams", and also to "understand the culture and the behaviors of the organizations, and the needs of their services or products" (Lacerda, 2004: 285). Indeed, design is responsible for tangibilizing the external factors that influence the individuals' perception of tourist

experiences, with special focus on the sensory stimuli (visual, auditory, olfactory, gustatory and tactile) (Agapito *et al*, 2013; Bitner, 1992; Heide and GrØnhaug, 2006). The aim is to craft satisfactory environments where unique, positive and memorable experiences are more likely to emerge leading to positive outcomes, such as destination loyalty (Tung and Ritchie, 2011). Thus, non-visual stimuli along with visual images are tools that bond humans and are the support to the relations between physical, intellectual and the social worlds. These "communication tools can differentiate qualitatively the way we communicate, the way the services or products are transmitted to people" (Lacerda, 2004: 285).

Against this background, ICT have contributed to innovative forms of branding destinations (Govers and Go, 2009; Hyun and Cai, 2009) since the rise of advanced ICT has dramatically changed marketing communication planning (Peltier, Schibrowsky, and Schultz, 2003). Instead of merely transferring the branding elements to the online environment as they are used in traditional media, DMOs now have the opportunity to build virtual brands that are mediated by the internet. The potential of the interactivity and vividness characteristics offered by this medium can be optimized (Hyun and Cai, 2009) by exploring virtual experiences based on the web environment contributing to the destination image formation (Cho *et al.*, 2002).

Specifically, websites are being increasingly explored by DMOs and tourist organizations as a central means of communication with respect to brand identity and values associated to it, allowing visitors to virtually experience the destination (Buhalis and Law, 2008; Doolin *et al.*, 2002; Hyun and Cai, 2009; Kim and Fesenmaier, 2008). The websites are increasingly becoming more interactive and sensory-informed since technology potentiates the use of other multimedia resources besides words to describe destinations and experiences, such as: interactive logos, webvideos, audiobooks, advergames, sensory maps, virtual tours and interactive platforms for posting testimonials (Agapito *et al.*, 2013; Cho *et al.*, 2002; Gretzel and Fesenmaier, 2003).

2.3 Short case studies

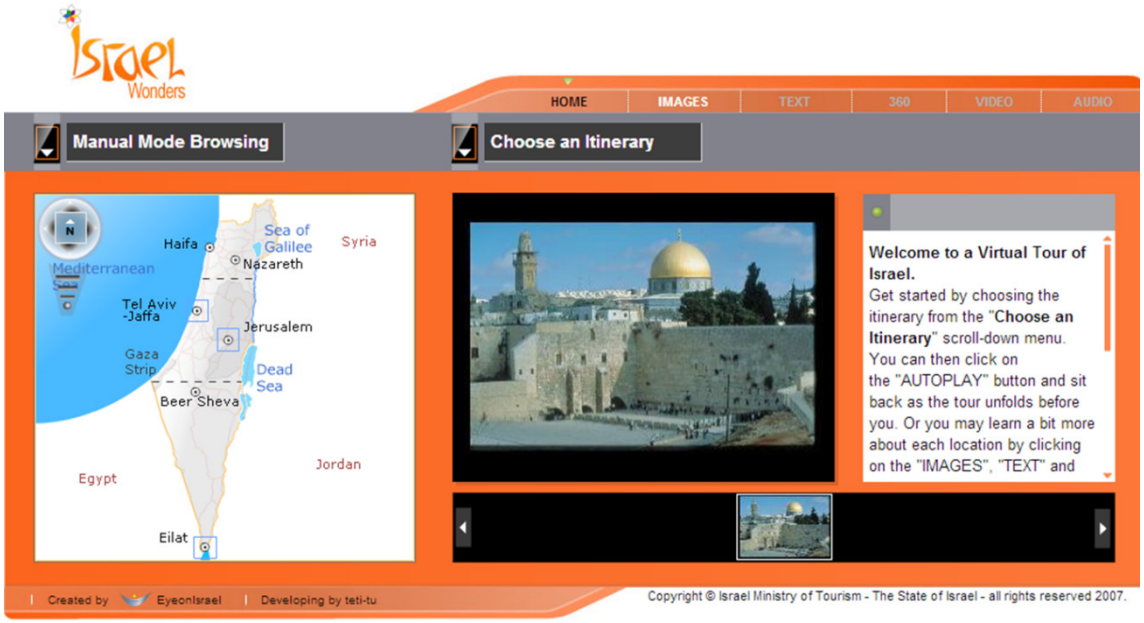
In Brazil, São Paulo Turismo developed a pioneer project, based on the concept of experience economy applied to tourism by creating the "map of sensations" (Figure 3), where attractions spots are described in terms of their sensory and emotional features, which were collected in a research based on residents' and visitors' testimonials. This map encourages visitors to live sensory-informed experiences, offering a new perspective of the metropolis. The project is permanently updated due to its interactive nature, which allows visitors to share their experiences (Agapito *et al.*, 2013). The site of the project gives the opportunity to explore São Paulo sensations with the help of an audio book, through which it is possible to capture, for example, the sounds, colors, textures, scents and gastronomic features of local settings (http://www.mapadassensacoes.com.br/mapadassensacoes/).

Figure 3 – Map of Sensations – São Paulo

Source: http://www.mapadassensacoes.com.br/mapadassensacoes/

Other official tourism websites use tools such as the *Google Street View*, which is associated with *Google Maps*, allowing visitors to virtually experience destinations, such as in the case of Israel (Figure 4). Visitors can have a 360 degree tour through the cyberspace, visiting three central cities – Jerusalem, Tel Aviv and Haifa – and experiencing the sacred paths and spots for pilgrimage (http://vt.goisrael.com/). Also, they use a similar technique to the *Art Project* from the Google Culture Institute, which files images and information from museums, a process that makes it possible to register images from the more inaccessible and narrowed streets of the Old City (Rafael and Almeida, 2014).

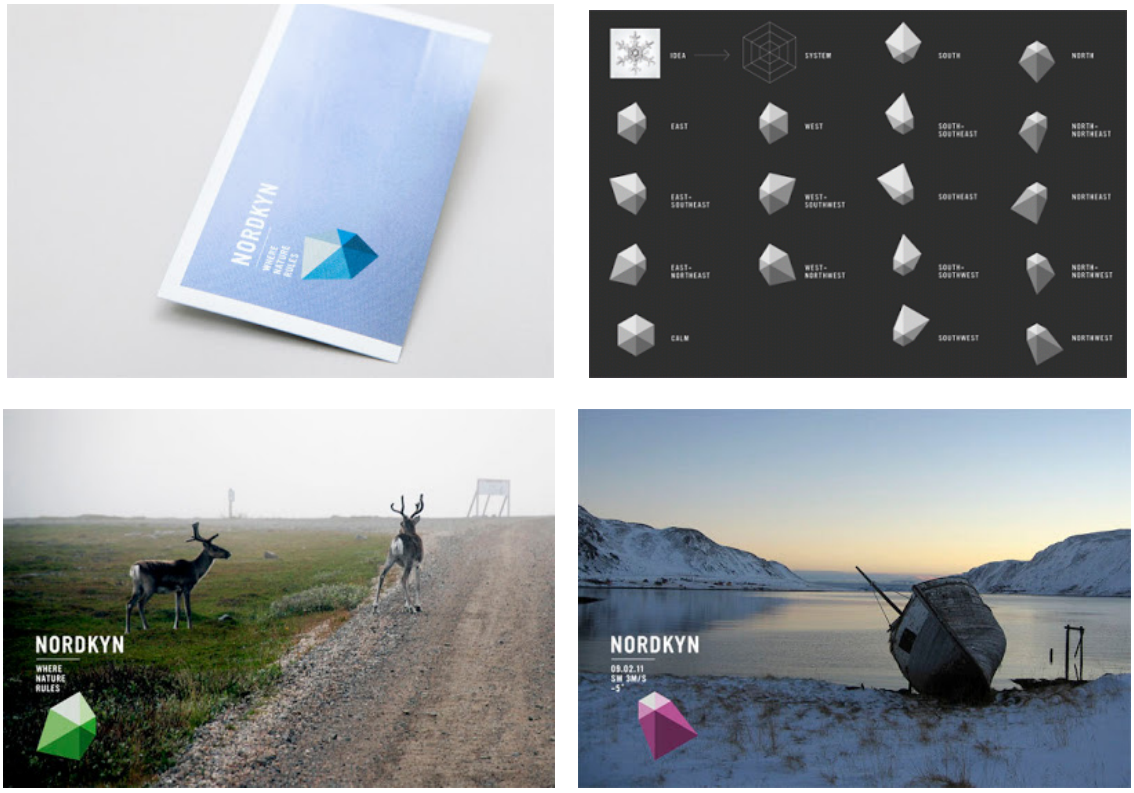
Figure 4 – Israel Wonders



Source: http://vt.goisrael.com/

The process of branding Nordkyn, a cape in the northernmost point of Norway, is an example of the role of technology in the process of building the destination's brand identity in a dynamic way (Figure 5). This example took into account the unique sensory qualities of the destination. The logo was based on the concept "Where Nature Rules" and on weather condition statistics available from the Norwegian Meteorological Institute. Accordingly, the logo updates every five minutes with the temperature, and the shape of the logo is determined by the wind direction. A logo generator was developed through which visitors can download the logo with respect to the specific weather conditions of a particular moment (http://www.visitnordkyn.com/).

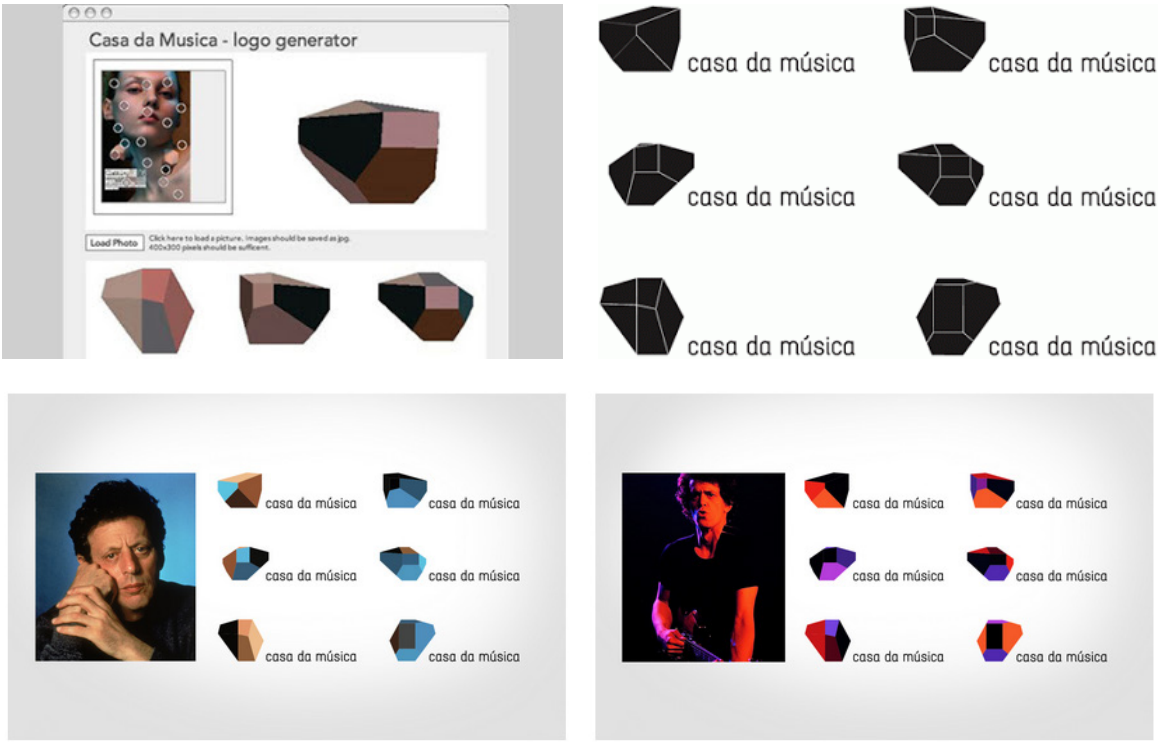
Figure 5 – Nordkyn brand identity



Source: http://identidade-visual.blogspot.pt/

The concept of flexible visual identity was also used by Stefan Sagmeister in the cultural sector with Casa da Música, which is the building most visited in Oporto, Portugal (Porto Business School, 2013). The logo color changes according to the context in which it is used, and the symbol shape relates to the crystal-based form of the building, presented in perspectives taken from six different angles. A custom built software – "logo generator" – produces a distilled version of any visual into a logo of Casa da Música, enclosing the core information of the original one (Figure 6). For example, the president of Casa da Música can have a business card with a customized logo created from his portrait (https://www.youtube.com/watch?v=URmKSyKAK5w).

Figure 6 – Casa da Música graphic brand



Source: http://www.sagmeisterwalsh.com/work/project/casa-da-musica-identity/

3. CONCLUSIONS

The development of ICT offered multiple challenges in tourism. This process resulted in changes in the dynamics of the design and marketing of consumption experiences, enabling consumers to engage in the process of co-creating their destination experiences in the context of a technology-based environment (Gretzel, Fesenmaier and O'Leary, 2006, Mosseberg, 2007; Neuhofer *et al.*, 2012; Prahalad and Ramaswamy, 2004). These facts give rise to implications in the design and marketing management of destination experiences (Buhalis and Law, 2008; Govers and Go, 2009; Gretzel, Yuan, and Fesenmaier, 2000; Hyun and Cai, 2009). Against this background, this paper proposed to explore the role of ICT in the marketing and brand design of destination experiences.

Indeed, DMOs are taking a central role in the development of combined strategies in management and marketing destinations, taking into account the needs and interests of all stakeholders, with emphasis on the design of a composite product offer, branding and communication strategies (Hyun *et al.*, 2003; Pike, 2004). Moreover, since the environment involving destination experiences can now be both physical and virtual, DMOs are called to direct efforts to the sustainable planning of the physical and virtual settings, in which positive and memorable experiences are more likely to emerge, leading to positive outcomes, such as tourist loyalty (Agapito *et al.*, 2013; Cutler and Carmichael, 2010; Kastenholz, *et al.*, 2012; Tung and Ritchie, 2011).

Against this background, this paper allowed the highlighting of some research topics that have important implications in the marketing and brand design of destination experiences and which require further investigation within the context of tourist experiences, such as: i) technology is a source of innovation and offers opportunities for the co-creation of enhanced destination experiences, resulting in destinations' competitive advantages that are increasingly more related to the use of ICT (Neuhofer *et al.*, 2012; Poon, 1993; Stamboulis and Skayannis,

2003); ii) the access to the internet and the proliferation of content-generated media has altered the way in which travel is planned, providing new e-commerce opportunities (Buhalis & Law, 2008); iii) destinations' websites or mobile phones with GPS technology can bring great benefits, by providing experiences before, during and after travel, offering games as an alternative to sightseeing experiences and allowing individuals to experience limited-access locations (Ferreira *et al*., 2014a; Hyun *et al*., 2009); iv) multi-sensory information might be useful in designing personalized location-based technologies, derived from geographical information systems (GIS) (Agapito *et al*., 2014; Vaz and Campos, 2013); v) in general, the use of games in the context of tourism have the use of social media in common, which transformed the way consumers find and share information, giving brands the opportunity to reach the worldwide audience (Buhalis and Jun, 2011; Ferreira *et al.,* 2014b; Xu *et al*., 2013); vi) destinations have the opportunity to more responsibly address the multi-sensory nature of the tourist experience in order to design accessible experiences for all by exploring the potential of ICT (Abranja et al., 2010; Agapito *et al*., 2013; Richards et al., 2010; Small *et al.*, 2012); vii) brands are augmented with the use of online resources, taking advantage of the electronic word of mouth (Buhalis, 2003; Buhalis and Jun, 2011; Neuhofer *et al*., 2012); viii) the evolution of technology, economical changes and globalization call for the study of visual brand identities of destinations and the way they are communicating, with the aim to analyze its contribution to the recognition and clarification of messages addressed to the diverse stakeholders and society in general (Govers and Go, 2009; Lacerda, 2004).

With respect to the implications to the marketing of destination experiences, the final remarks point out some practical uses of ICT in the different moments of tourism trips. In the pre-trip phase, the destinations' websites can explore all the senses, rather than only visual stimuli, in order to communicate their experiential offerings in a rich and collaborative way. This idea includes the use of advergames, interactive brand identities, virtual tours, webvideos, audiobooks and sensory maps, for example, with access to generated user-content that can assist tourists in the decision-making process and in the planning of the trip (Gover and Go, 2009; Gretzel and Fesenmaier, 2003; Hyun *et al*., 2009). *In situ*, experiences can be enhanced through multisensory-informed content devices, by exploring mobile applications and using technologies such as GIS and GPS, as well as encouraging visitors to share their experiences in real time and to participate in geocaching activities and contests (Agapito *et al*. 2013; Ferreira *et al*., 2014a; Hyun *et al*., 2009). The post-trip is a vital stage since many tourists continue to enjoy the pleasure of their choice after returning home, through sharing stories with family and friends and reliving the experience (Crouch *et al.*, 2004). At this stage, sharing stories on blogs and websites or using repositories platforms for sharing videos and photographs, as well as participating in the branding process and communication of the destination, can be encouraged by DMOs (Gretzel *et al.*, 2011; Tussyadiah and Fesenmaier, 2009).

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SOCIAL NETWORKS' USERS: PROFILES AND MOTIVATIONS

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ABSTRACT

The present work aims at analyzing the profiles of social networks' users, having accomplished an online questionnaire. A sample of 230 cases was obtained (limited to a deadline of a thesis that combined this study with another about enterprises' involvement in social networks). From the socio-demographic data obtained (age, time of day in social networks, level of education and occupational status) there are different behaviors. The results highlight the need of harnessing the potential of recruitment and business partnerships/projects through social networks. This is important because the vast majority of respondents use these platforms for more than one year and a significant percentage accesses them every day. Another issue is that mobile phone connection has a significant expression, thus relevant for ubiquitous business or work applications. Regarding the actions performed, besides seeing/sending messages as the most usually done, searching for knowledge (new contents) is also expressive what is relevant for innovative initiatives. Regarding the motivation factors, it is interesting that besides communication with friends and meeting old friends, the use of such platforms for professional relations has high importance what corroborates some potentials mentioned.

Keywords: Social Networks, Users, Profiles, Behaviors, Motivations

JEL Classification: O35

1. INTRODUCTION

New communication technologies allow a global interaction like never before imagined. Internet evolution, and especially Web 2.0 (O'Reilly, 2005), opened new opportunities and benefits, given its ease of communication and information dissemination (Brandão and Marques, 2010; Fernandes and Almeida, 2009). One of the greatest opportunities was the opening of new online applications of network environments known as social networks (Tredinnick, 2006; Boyd and Ellison, 2007; Constantinides *et al.,* 2008). Today, the internet presents itself as the platform of greater access, in which millions of individuals daily enter at any place or time (Tapscott and Williams, 2007). In this context, new environments appeared (Evans, 2008) such as the social networking sites, including *Facebook, YouTube, LinkedIn, Twitter, Hi5, Bebo,* and *MySpace,* among others, in which users either communicate or share content (Pei *et al.* 2011; Boyd and Ellison, 2007). The growth of these cyber-communities is a notable social phenomenon. Empirical studies have described new forms of social and economic behavior that call for deeper analysis.

On those platforms, people create their profiles, communicate, exchange pictures, share movies, or join groups on a particular interest, creating communities. The participation in these communities, and their influence, can add value to any business. The networked

individuals can actively participate in innovation, wealth creation and social-economic development in a way never thought of before (Qualman, 2009). According to the study "Internet use in Portugal 2010" (Taborda, 2010), more than 60% of the users of social networks in Portugal consider it important that companies also have a profile there. The continuous entry of firms in these applications can completely change the way of doing business.

Some authors have suggested that, after the knowledge economy and digital economy, a new economy is happening now, naming it "Socialnomics" (Qualman, 2009), "Economy of relations" (Robison and Ritchie, 2010), or "Economy of integrity" (Bernasek, 2010). Thus, the key features of business and innovation, which in past decades were tangible, are now replaced by intangible assets such as connections, knowledge, and integration. Studies on social networking sites have expanded, receiving increased attention from the scientific community (Boyd and Ellison, 2007). These sites are currently a major research focus in several areas. One example is the *Facebook* application, which has been studied by Dwyer *et al.* (2007), Acquisti and Gross (2006), Lampe *et al.* (2007), and Stutzman (2006).

The present work aims at characterizing a group of users involved in social networks as their profiles will be increasingly important for enterprises' business models and strategies. Enterprises need to look deeper and analyze these new environments with multiple perspectives as they allow communication that covers millions of different features and potential customers (Vasconcelos and Campos, 2010; Tapscott and Williams, 2007; Brandão and Marques, 2010; Constantinides *et al.,* 2008). The firms' adaptation to this new reality will help them to innovate their strategy and market approach (Magalhães, 2011).

2. SOCIAL NETWORKS: MAIN TRENDS

Arima (2010) points out that "social media" is an opportunity for organizations to build brands, demonstrate leadership behaviors, expand resources, reach new audiences and find new sources of ideas. The study of Ingelbrecht et al. (2010), using a sample of 4000 consumers in 10 markets worldwide (including USA, France, Germany, and China), gives to social networks, like Facebook and LinkedIn, the role of being the emergent places for retailing and shopping activities. The same study indicates that companies can use mass collaboration as a link between business value and social networking technologies. For example, they can examine a target community of a particular product and interact with it in order to rethink ways of selling or innovating the product.

Social networks help to further intensify networking activities, ideas' exchange and knowledge integration. They can also increase the cooperation among stakeholders (Cross and Thomas, 2010). The most visible issue on these relations in enterprise-social networks is the engagement with the community: the company has the possibility to be near its customers and share benefits with them. The benefits of this representation/participation exist if the companies manage to understand the power of collective behavior in the impulse of positive changes in business (Bradley, 2011). For companies, it is important to find their social momentum, which is the social dynamics that, using the internet specificities and interactivity, provides not only an increment to the economic value of the business model but also a return maximization (Hummel and Lechner, 2002).

A review of Falcão (2010) on a study from IGMarketing concluded that social networks are a set of tools that benefits the company as much as it invests in them. Through social networks, it can participate, create content, increment the network, talk to the community, observe, and examine. This results in skills and competencies for the team or individual worker's activity. Currently, social networking sites are being invaded by companies seeking

for a presence or with products to promote. Some companies are even breaking down the barriers between the virtual and physical, hiring their professionals online (E.life, 2010). Companies are migrating to social networks, keeping their first web sites on a secondary strategic line.

The large volume of digital information which many companies deal with (*Big data*), along with social media (social networks, blogs, etc.), will have combined applications. With the mobile wave, these will expand into useful and well-designed applications (apps). Brands will realize the need of strategies to create, distribute and capture consumer attention. The challenge for advertisers is to understand consumer habits in all of those and decide which investment is necessary to capture attention (since they know the financial power of consumers). Several data specialists defend techniques such as *basket analysis*, *clustering,* and correlations of social media data to better understand consumer habits, elected brands, and behaviors (Carravilla, 2014).

This study then tries to search for a group of users involved in social networks and discover their socio-demographic characteristics and attitudes in order to discuss potentials and trends from which enterprises or individuals can take advantage.

3. DATA COLLECTION

We used a questionnaire oriented to users of social networks (QUTI), which aims at characterizing the profiles within a group of users of these kinds of platforms. The questionnaire was constructed using a specialized online tool (SurveyMonkey www.surveymonkey.com) which allows the creation of a website where the questionnaire is available. The use of this tool in research is justified because it allows quick access to the questionnaire and facilitates a faster response. It has also the advantage of analyzing the data obtained. Along with a community of other users and companies, it is interesting to get to know this innovative and efficient means of research and data processing. This tool is already used by a considerable number of researchers. For example, Barry et al. (2008) used it in their research and cite several studies where it was also used. Evans et al. (2009) recommend the use of this service, SurveyMonkey, in future research as it allows users with less knowledge to develop and design efficient psychometric questionnaires.

Data were collected from October to December 2010, with participants having the opportunity to turn back to earlier questions and review their answers. The electronic version of this instrument validates and allows the questionnaire's completion with certain questions requiring a mandatory answer. An email was sent describing the main objective of this study with a link to the questionnaire online (QUTI). Responses were given directly in SurveyMonkey, then exported to Excel, and some issues were analyzed with the SPSS software. The data collected are confidential and private, and they can only be accessed through the use of a login and password (data between server and client are encrypted, encoded). The data are grouped by questions to be treated and compared (Minayo et al. , 2007).

The types of question fields used in the questionnaire included: multiple choice (one or more answers), array of options (multiple answers) and comment box (open response). The file migrated to SPSS tests the consistency of the collected data by validating answers codes, question by question.

3.1. Universe and sample

Regarding the purpose of this study, the universe consists of a group of users of social networks. From a group of 1500 regular users of the Facebook platform, we received 230 answers from

them in the referred period (from October to December 2010), related with the deadline of a thesis that combined this study with another about enterprises' involvement in social networks. Data collection began with the process of releasing online the users' questionnaire (QUTI). The QUTI was relatively easy to answer and required the introduction of the users' e-mail addresses for their post reception of this investigation and its results.

4. RESEARCH DEVELOPMENT

After closing the process of online questionnaires, the collected data were then processed. The data treatment began within SurveyMonkey, which was later complemented by a statistical analysis and compared with other studies in the same area.

4.1. Collecting data from users

Table 1 shows the 16 questions of the QUTI directed to the users, as well as the respective domain (possible values) and types of answer. These types are a multiple choice, with one or multiple responses, and an array of options. A latter attribute (comment box) appears if it is an open answer; in the case of being a closed answer, data entry is not permitted. The questions presented in this survey are based on the comparison of studies and discussion groups on social networks.

Table 1. Characterization of the questions to users - QUTI

Question	Domain	Type of answer
QUTI1: Which social networks do you use?	*Facebook; Hi5; LinkedIn; MySpace; Orkut; Twitter; Youtube*	Multiple choice (several responses), closed
QUTI2: In which social network do you spend more time?	*Facebook; Hi5; LinkedIn; MySpace; Orkut; Twitter; Youtube*	Multiple choice (unique response), closed
QUTI3: How long are you registered in social networks (*Facebook, LinkedIn, Twitter, Youtube, Orkut*, others)?	Less than 1 month; between 1 month and 6 months; more than 6 months and less than 1 year; more than 1 year	Multiple choice (unique response), closed
QUTI4: How long do you use the internet?	Less than 6 months; between 6 months and 1 year; more than 1 year and less than 2 years; more than 2 years and less than 3 years; more than 3 years and less than 5 years; more than 5 years and less than 8 years; more than 8 years	Multiple choice (unique response), closed
QUTI5: Which device do you use to connect the internet?	Phone, Computer, mobile phone	Multiple choice (unique response), closed
QUTI6: Given the following actions, which do you most frequently do?	See and send messages; insert videos; create blogs; develop web pages; share photos; chat; change profiles; download of music and games; search for a job; search for people; search for knowledge (new contents); send news to friends (ex: new products); playing games	Multiple choice (several responses), closed
QUTI7: How much time do you spend in social networks?	Once in a month; 5 hours per week; every day; only at weekends; 1 or 2 hours per day; more than 2 hours per day	Multiple choice (unique response), closed
QUTI8: At what time of day do you use social networks?	It varies during the day; in the morning; in the afternoon; by night	Multiple choice (unique response), closed
QUTI9: Are you more time at home since you start using social networks?	Yes; No	Multiple choice (unique response), closed

QUTI10: Which are the motivation factors for using social networks?	Meet new people; meet old friends; being creative; desire of expressing ideas; knowledge sharing; knowing new products; communication with friends; professional relations; stay informed about events; curiosity about other people; desire of status; dating with people	Array of options (several responses), closed
QUTI11: How old are you?	<10 years old; 10 to 14 years old; 15 to 17 years old; 18 to 24 years old; 25 to 44 years old; 45 to 65 years old; >65 years old	Multiple choice (unique response), closed
QUTI12: Your gender	F; M	Multiple choice (unique response), closed
QUTI13: Which is your education level?	Primary level; Secondary level; Graduated/ Bachelor; Master/ PhD degree	Multiple choice (unique response), closed
QUTI14: Which is your professional situation?	Employed; entrepreneur; unemployed; housewife; student	Multiple choice (unique response), closed
QUTI15: Civil status	Married; Separated; Single; Single (living with parents); Single (living with other)	Multiple choice (unique response), closed
QUTI16: your email address	Open answer	Text box, open, confidential

Source: Own elaboration

4.1.1. Profiles of social networks' users

It was observed that respondents generally use more than one social network. Following the analysis (Table 2), the most used social networks are: Facebook (100%) and YouTube (55.1%), followed by Hi5 (26.9%), LinkedIn (12.8%), MySpace (6.6%), Twitter, and Orkut (both 5.7%). This happens because many individuals have joined Facebook, which is the social platform where they spend the most time (74.9%), with an increasing difference from other social networks. Twitter is second, according to time spent on using it (17.2%). As in other studies (E.life, 2010b), social networks have more female participation (57.5%). The main ages of users who answered this survey are between 25 and 44 years (62%), followed by users between 18 and 24 years (19.2%). Some recent studies, however, denote users from 25 to 44 years old quitting Facebook and younger users augmenting their participation.

Regarding their education level, most respondent users have the 'secondary level' (46.1%), followed by the 'Graduated/Bachelor' level (44.3%). According to the civil status, most users are single. Most professional situations are active, where 53.7% are 'employed' and 20.3% are entrepreneurs, followed by 'students' (13.7%), 'unemployed' (10.1%), and 'housewives' (2.2%). For the item related with internet access, most respondents still use a 'computer' connection (57.5%), although a 'mobile phone' connection is getting a significant expression (42%). For the item 'age of internet use', most respondents have used it for more than 8 years (54.8%), contrasting with those who have used it for less than 6 months (1.3%). Finally, for the item 'age of social networks use', the vast majority of respondents (73.3%) have used these platforms for more than 1 year, in contrast to those who have used them for less than 1 month (0.9%).

For the item 'time of the day in social networks', most users replied that it varies during the day (50.2%), followed by 45.7% who access them by night. Interestingly, 78.7% answered that they do not spend more time at home since they began using social networks, as only 21.3% spend more time at home due to social networks' access. Regarding the 'time spent on social networks', a significant percentage of users access these platforms every day (33.3%). There are even users spending more than 2 hours per day in social networks (13.3%). About 25.3% spend from 1 to 2 hours per day, 14.2% spend 5 hours per week, 9.3% access them only on the weekend, and 4.4% of respondents access them once in a month.

Table 2. Social networks' users and their profiles

Item	Characteristics/values	Percentage
Social networks used	*Facebook*	100%
	Twitter	5.7%
	Orkut	5.7%
	Youtube	55.1%
	Hi5	26.9%
	LinkedIn	12.8%
	MySpace	6.6%
Social network in which users spend more time	*Facebook*	74.9%
	Twitter	17.2%
	Orkut	0.0%
	Youtube	1.3%
	Hi5	2.6%
	LinkedIn	0.9%
	MySpace	2.6%
Gender	Masculine	42.5%
	Feminine	57.5%
Age	< 10 years old	0.9%
	10 to 14 years old	1.7%
	15 to 17 years old	3.1%
	18 to 24 years old	19.2%
	25 to 44 years old	62.0%
	45 to 65 years old	12.2%
	> 65 years old	0.9%
Education level	Secondary level	46.1%
	Primary level	3.5%
	Graduated/Bachelor	44.3%
	Master/PhD	6.1%
Civil status	Married	30.1%
	Separated	12.8%
	Single	22.1%
	Single living with parents	21.2%
	Single living with other	13.7%
Professional situation	Employed	53.7%
	Entrepreneur	20.3%
	Unemployed	10.1%
	Housewife	2.2%
	Student	13.7%
Age of internet use	Less than 6 months	1.3%
	Between 6 months and 1 year	1.7%
	More than 1 year and less than 2 years	2.6%
	More than 2 years and less than 3 years	5.7%
	More than 3 years and less than 5 years	14.3%
	More than 5 years and less than 8 years	19.6%
	More than 8 years	54.8%
Age of social networks use	Less than 1 month	0.9%
	Between 1 month and 6 months	7.6%
	More than 6 months and less than 1 year	18.2%
	More than 1 year	73.3%

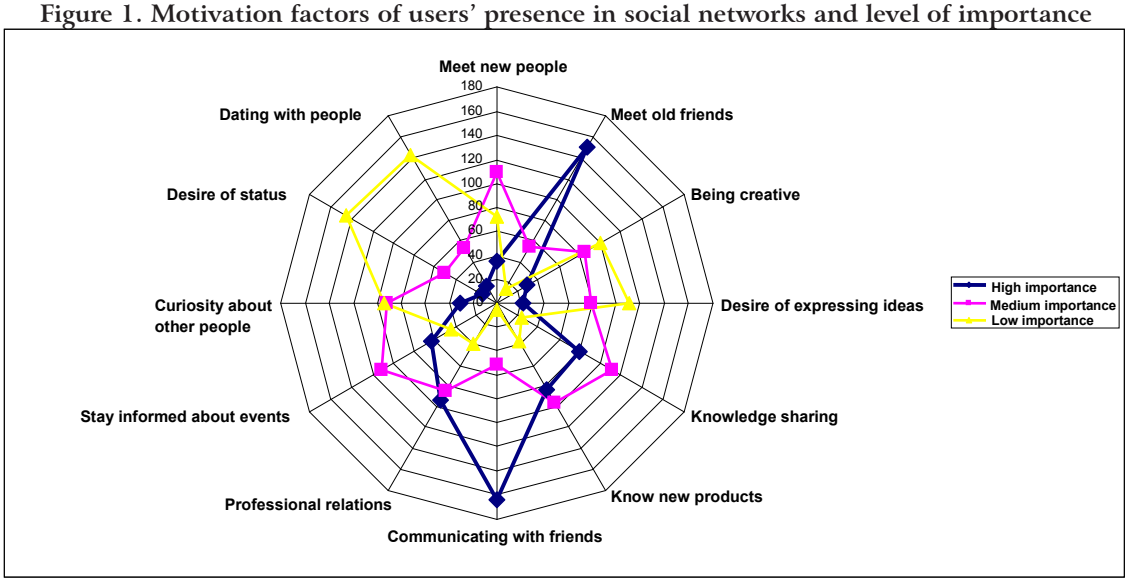
Time spent on social networks	Once in a month	4.4%
	5 hours per week	14.2%
	every day	33.3%
	only at weekends	9.3%
	1 or 2 hours per day	25.3%
	More than 2 hours per day	13.3%
Time of the day in social networks	It varies during the day	50.2%
	In the morning	0.9%
	In the afternoon	3.1%
	By night	45.7%
More time at home since social networks' use	Yes	21.3%
	No	78.7%
Mean of connecting the internet	Phone	0.4%
	Computer	57.5%
	Mobile phone/smartphone	42.0%
Actions performed in social networks	See and send messages	85.1%
	Insert videos	22.4%
	Create blogs	5.7%
	Develop web pages	9.2%
	Share photos	45.2%
	Chat	24.6%
	Change profiles	18.4%
	Download of music and games	36.4%
	Search for a job	18.4%
	Search for people	25.9%
	Search for knowledge (new contents)	53.9%
	Send news to friends (ex: new products)	21.1%
	Playing games	23.2%

Source: Own elaboration

Regarding the actions performed in social networks, this study highlights 'See and send messages' as the most commonly done (85.1%), followed by 'Search for knowledge (new contents)' (53.9%), 'Share photos' (45.2%), and 'Download music and games' (36.4%). Interestingly, the actions related with 'Create blogs' (5.7%) and 'Develop web pages' (9.2%) are still weak. However, an item that is already expressive is 'Send news to friends (ex: new products)' (21.1%).

An important issue to analyze is the motivation behind using social networks. Thus, in this item (which are the motivation factors for using social networks - QUTI10) the following figure shows that 'Communication with friends' is the main motivation (N=164 individuals), followed by 'Meet old friends' (N=149). These results confirm what other studies defend: the existence of relationships before having a presence in social networks (Boyd and Ellison, 2007). Thus, Facebook tends to be more frequently used to consolidate relationships that already exist offline than to create new relationships. Figure 1 illustrates several other motivations of the respondent users for adhering to social networking sites (the radar main lines have different colors according to a scale of importance: high/medium/low).

Figure 1. Motivation factors of users' presence in social networks and level of importance

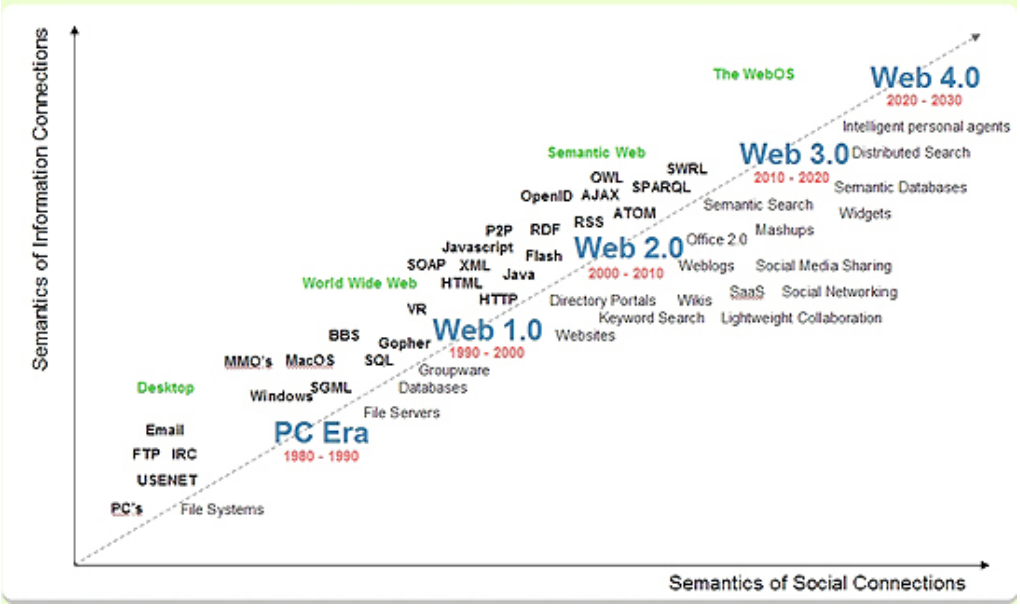


Source: Own elaboration

The use of such platforms for 'professional relations' is also high (N=94). Classified as medium importance factors are the following: 'knowledge sharing' (N=111) and 'stay informed about events' (N=111). Users are also receptive to learning about new products through social networks (N=96, medium importance). Interestingly, 'dating with people' in social networks is of low importance (N=143), followed by 'desire of expressing ideas' (N=110), 'being creative' (N=99), and 'curiosity about other people' (N=94). These results confirm that social networks' use focus more on benefits to users than on dating with people or on curiosity about people's lives.

Social networks are really important to study and explore by enterprises and researchers because these kinds of platforms are included in the Web level 2 (together with blogs, wikis, video sharing, web services, etc.), which is evolving rapidly to the Web level 3 (known as the "intelligent web"). This level will enable the use of autonomous agents to perform tasks for the user. Its goal is to create a capability that anticipates user needs, easily integrates available information, and provides ubiquitous access to personalized content (see Figure 2). Tags and keywords offer a new way for organizing and retrieving web resources (Borrero and Caballero, 2013).

Figure 2. The third generation of web is coming



Source: http://www.novaspivack.com/articles

5. DISCUSSION AND CONCLUSION

In summary, by analyzing the socio-demographic data obtained in this study (such as age, time of day in social networks, level of education, and occupational status), we can think of different users' profiles. So, from data collected, we know that 20.3% of respondents are entrepreneurs and 44.3% have graduation/bachelor as their education level. These results can highlight the need of enhancing the potential of recruitment strategies through social networks or of starting business partnerships/projects. This is important because the vast majority of respondents (73.3%) use these platforms for more than one year, and a significant percentage (33.3%) access them every day. Another issue to consider here is that the mobile phone connection is getting a significant expression (42%), thus making it relevant for new business and work applications. Regarding the actions performed in social networks, besides viewing/sending messages as is most commonly done (85.1%), searching for knowledge (new contents) is also expressive (53.9%) and can be relevant for innovative initiatives. Finally, in the item related with the motivation factors for using social networks, it is interesting that, besides communication with friends and meeting old friends, the use of such platforms for professional relations is of high importance, which corroborates some of the potentials mentioned above.

Social networks introduced fundamental changes in the behavior of users. Firms have recognized this change by taking advantage and expanding their activities, building communities, and selling their products online (Evans, 2008). This can bring great benefits to business, once technology becomes one of the main tools used to innovate. Several empirical studies demonstrate links between information/communication technologies, innovation, and competitive success (Edquist and Henrekson, 2006). Social platforms have the advantage of cheap communication, leading to a very large membership and causing the network to grow fast and connect users around the world (Hempel, 2009). What leads this process is the fact that users share common interests (Weber, 2009) without having to meet in the same, physical space (Kardaras et al., 2003). These online communities can suddenly join a crowd of individuals (Golder et al., 2007; Shirky, 2010).

With the implementation of social login (login-connection of social networks), more consumer information will be available to brands which, combined with information obtained through monitoring, can provide managers a closer and customized relationship with customers (Trusov et al., 2010). The relationship with consumers through social networks is becoming one of the biggest digital markets with great service operations on Twitter, Facebook, and multiplatform mobile applications (such as instant messaging - WhatsApp).

It is interesting that when new blogs or social sites appear—such as, for example, 'Branch' designed specifically for those who want to socialize by subjects to discuss or develop together (in partnership)—other major social networks end up buying these new sites because they recognize their potential. Thus, companies should consider this because niche markets can exist in the virtual world just like in the real world. Such niches (or even new markets) may emerge, attracting public attention through the analysis of their behavioral profiles, trends, discussion of ideas/news, and deep analysis of relationships (social networks analysis - vectors of who links to whom successively).

Although users have numerous connections to other members, only a fraction of those may actually influence a member's site usage. So, the influence of potentially hundreds of connections needs to be evaluated for each user. Inferring precisely who is influential–and, therefore, of managerial interest for the advertising, targeting, and retention effort–is difficult. However, researchers in this area acknowledge that descriptors from user profiles (e.g., gender, dates, objectives) lack the power to determine who, per se, is influential. For detecting this, the longitudinal records of members' log-in activity can be used (Trusov et al., 2010). Because all networks are connected, users within Facebook are connected to, and are presumably influenced by, their level 1 network[1] and level 2 network[2] in Twitter, LinkedIn, or every other social network in which they participate. Such an understanding can enable more precise targeting, as well as retention efforts, aimed at sustaining or increasing the activity of influential existing users and, therefore, future revenue.

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[1] A user is part of a level 1 network through an established "friendship" link (i.e., an accepted invitation).
[2] A level 2 network user is a friend that is not part of the user's level 1 network but is in the level 1 network of one of their friends.

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WHY USE-CENTERED GAME-BASED LEARNING IN HIGHER EDUCATION? THE CASE OF CESIM SIMBRAND

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ABSTRACT

This paper endeavours to research about simulation/serious games exploration within University of Algarve (Portugal), namely *Cesim SimBrand* for Marketing Simulation (course unit). A total amount of 30 learners participated in this study through a mixed survey (open-ended and closed-ended queries). The empirical evidences exhibit interesting outcomes: (i) a response rate of 50 percent; (ii) these tools increase learning engagement, although it is essential to be more realistic; (iii) teamwork seems to be a controversial topic; (iv) learners had a positive experience; however, some feel unprepared before their usage (prior knowledge). Hence, this survey provides a good platform for future research and approaches how to promote a better exploration of simulation/serious games. To conclude, this manuscript will be divided into six sections: (i) the 5W's of game-based learning; (ii) research (statement of the problem, aims/objectives, philosophical approach and data collection/analysis); (iii) diagnosis (game deliver and learners' pre-perception); (iv) findings (learners' profile, awareness, experiences and preparation); (v) limitations and future work (methodological limitations and tools/analysis upgrade); and, (vi) conclusions.

Keywords: Game-Based Learning, Serious Games, *Cesim Simbrand*, University of Algarve

JEL Classification: I23, O33

1. INTRODUCTION

Simulation games are becoming widely accepted in education and explored in curricular units of, for instance, engineering, bio-sciences, aviation, military and healthcare (Jackson, 2004). Business education games seem to be associated with prevalently positive outcomes (Fengfeng, 2009). Although games do not resolve all educational problems, they are one potential technique to engage students in learning (Lin and Tu, 2012).

Many studies denote game-based learning (GBL) exploration to enhance students' learning (Squire, 2011), improve their thinking and educational effectiveness (Eastwood and Sadler, 2013), or enhance engagement (Anderson, 2006). However, critics argue about the value of these contemporary learning environment for students' real learning (Guillén-Nieto and Aleson-Carbonell, 2012), which is challenged by a huge body of research on the effectiveness of computer games. The reasons are simple (Sørensen, 2011): (i) theoretical knowledge that learners acquire in classrooms does not provide a full awareness of business issues; (ii) lecturers' explanations often disregard practical explanations and skill development that are fundamental for a future career.

It is, therefore, important to comprehend how a business simulation game can be a valid solution to engage and prepare learners for real and complex contexts in a contemporary, changing business environment (Findling, 2008). This paper aims to realise students' perceptions and experiences with *Cesim SimBrand* (Marketing simulator).

In summary, the argument will be divided into six sections: (i) game-based learning: 5W's (who, what, where, when and why) ; (ii) research (statement of the problem, aims/objectives, philosophical approach and data collection/analysis); (iii) diagnosis (game deliver and learners' pre-perception); (iv) findings (learners' profile, awareness, experiences and preparation); (v) limitations and future work (methodological limitations and tools/analysis upgrade); and (vi) conclusions.

2. GAME-BASED LEARNING: 5W'S

2.1 Who?

Computer games are becoming an important component for economic, social and political systems (de Castell and Jenson, 2004); as a result, an increased importance over educational strategies is expected. In this case, computer educational games enable several overlaps (Silva et al., 2013): (i) educational content; (ii) design; (iii) learning theories linkage; (iv) assessment standards; and (v) political issues (organisational or national). Thus, these overlaps acknowledge the interaction amongst game developers, lecturers, learners, educational institutions, politicians and society (stakeholders).

2.2 What?

2.2.1 Game-based learning

A simulation game is typically defined as an artificial environment that copies chosen features of real situations, as well as enables participants' observation and reflection upon their decisions (results) (Angelides and Paul, 1999). This definition denotes the long history of computer games for business and, consequently, their advantages and disadvantages.

Simulators offer the benefits of experimental and generative learning while enhancing learning experience (Zantow and Knowlton, 2005) because these: (i) enable participants to explore a complex business scenario without incurring the financial penalties (Mawdesley et al., 2011); (ii) promote participants' engagement, i.e., make them more active and motivated (Salas, Wildman and Piccolo, 2009); (iii) develop strategic, problem-solving and behavioural skills (Salas, Wildman and Piccolo, 2009); and (iv) implement complex decisions, instead of a set of rules and acknowledge the impact of changes over time (Wall and Vian, 2008).

However, simulation games are fraught with the following difficulties: (i) lecturer's perception about simulators ought to be positive, and they must be well prepared (Lifelong Learning Programme, 2012); (ii) students can consider the simulation unrealistic and ultimately disregard the learning process (lack of motivation to continue) (Wall and Vian, 2008); (iii) lecturer personal and professional background and genre knowledge (lecturing style) (Wall and Vian, 2008); (iv) trade-off between class and home study time, i.e., gaming consumes an excessive amount of time (class), while the home option imposes extra work on the lecturer (answer queries) and provides feedback (Lifelong Learning Programme, 2012).

2.2.2 Cesim SimBrand

Cesim SimBrand (figure 1) immerses students in a virtual marketing environment, through a storyline of a smartphone enterprise, in which these compete with other teams in order to obtain the highest score possible (make a company successful). According to Cesim (2013), this learning tool requires participants' attention to:

actively manage the product portfolio by matching both qualitative and quantitative features of products with the selected target segments' preferences. Moreover, pricing, promotion and channel selection need to be set based on the segments' preferences. In addition, teams manage the after sales and research and development decision.

And, its expected outcome is that:

participants will fully comprehend the different parts of the marketing decision making process, their relationship with each other, and their impact on the company's overall results. In addition, participants will gain invaluable experience in teamwork and problem solving (Cesim, 2013).

In conclusion, *Cesim SimBrand* presents the following theoretical foundations for marketing curriculum: (i) an engaging environment, where situated content permit the understanding of formalized concepts; (ii) a curriculum-based business system, which enables a problem frame and contextualized resources; (iii) incorporation of multiple resources, which produces an effective balance between fullness of context and level of attention; (iv) multiple interactions with a marketing environment; (v) connectivism, i.e., multiple interactions with the lecturer and fellow students (knowledge construction process).

Figure 1. An example of *Cesim SimBrand* screenshot

Source: Cesim (2013)

2.3 Where?- Research context

2.3.1 Macro

The process of "gamification" is rapidly entering in several areas of learning in Portuguese universities; however, this process is far from being mature. The main reason for the exploration of simulators/serious games is the positive effect on education, despite a necessary combination with traditional learning methods (blended learning). This context provides a solid and steady background to learners (Lifelong Learning Programme, 2012).

Existing studies ascribing lecturers' expectations are often dashed, as well as those of learners, due to a perception gap between both parties. The reasons for this gap are multiple: aims/objectives for exploring simulation games, each group's perception and even skills/competences. Thus, the overall research project aims to identify the benefits and pitfalls

acknowledged by each group (lecturers and learners) and derive critical success factors for achieving better learning outcomes.

2.3.2 Micro

The University of Algarve (UAlg) is a public university located in the southern region of Portugal with four distributed campuses: three in Faro and one in Portimão. UAlg has around 750 permanent lecturers and 450 researchers with a growing commitment towards R&D and innovation. Research and undergraduate and postgraduate courses vary from Earth/ Marine Sciences and Health to Engineering and Technology, Tourism and Social Sciences/ Humanities (including Management).

2.4 When?- PhD milestones

The first co-author PhD research started in the academic year 2012/2013 (January) which corresponded to year zero (MPhil); so, this date enabled the first milestone for *Cesim SimBrand* only during this academic year (first semester). The explanation acknowledges the Marketing bachelor's overall structure, i.e., Marketing Simulation is a third year, first semester course unit. The following milestones for data collection will be the academic years 2014/2015 and 2015/2016.

2.5 Why?- Statement of the problem

Despite the potential of simulation games for teaching and learning, several barriers have been identified concerning their adoption in educational contexts (Eastwood and Sadler, 2013). Additionally, recent studies on digital games for academic achievement have reported contradictory or ambiguous findings about learning effectiveness or learners' engagement (Yang, 2012; Papastergiou, 2009).

Apparently, and following Gibson et al. (2014), the lack of significant findings acknowledges an interesting trade-off: an increasing recommendation to explore serious games in educational contexts versus a poor implementation/integration within course units. From a qualitative meta-analysis perspective, further research on the effectiveness of games in higher education is essential, namely in longitudinal (e.g., Fengfeng, 2009) and qualitative (Connolly et al., 2012) formats. As a result, this study attempts to comprehend students' experiences within simulation games (*Cesim SimBrand*) in educational contexts; it is a worthwhile contribution to the literature.

3. RESEARCH

3.1 Aims/objectives

This study highlights a sub-research query of the first co-author PhD research on GBL exploration: how effective is an integrative approach, by enabling a business simulator (*Cesim SimBrand*), on learner's engagement and learning outcomes (skills and competences). The author's option, including only learners' behaviour, acknowledges three analytical assumptions: (i) empirical evidence demonstrates richness from lecturers and students (e.g., Kikot et al., 2013); (ii) publication strategy (see Kikot et al., in press); and, (iii) the longitudinal remarks (further details on the philosophical approach).

Hence, the main PhD research question is: can GBL (*Cesim Global Challenge, Cesim SimBrand* and *Cesim SimFirm*) be a useful and productive tool to support Management learners for effective learning towards complex contexts while enhancing engagement? The choice of these three business simulators is explained through two analytical dimensions: (i) University of Algarve strategy for Business Studies (adoption and implementation of these

games); and (ii) rich explanation (bond to interpretive research), since it will be possible to obtain insights from a wider group of lecturers and learners (Management, Economics and Marketing Bachelors).

3.2 Philosophical approach

To understand students' experiences, a qualitative longitudinal and interpretive case study is provided because "qualitative researchers aim not to limit a phenomenon—make it neat, tidy, and comfortable—but to break it (...) so that a description of the phenomenon, in all of its contradictions, messiness, and depth, is (re)presented" (Mayan, 2009, pp. 11). While interpretive philosophy captures information on more exploratory queries to highlight insights and subjectivity of people's opinions, as well as context (Walsham, 2011), the longitudinal option enables a comparison in multiple milestones (Bryman and Bell, 2011). In addition, their bond with the chosen methodology is well-documented in literature since case studies can be used to explain, describe and explore events within their milieu (Yin, 2009).

3.3 Data collection and analysis

3.3.1 Overview

Data collection acknowledges a mixed survey, including close and open-ended queries, which is a traditional and important way to collect data about values or opinions (Burns, 2000). Their analysis acknowledges: (i) a numerical approach for the close-ended queries, despite potential criticism (Alaranta, 2006); and (ii) a hermeneutical approach, i.e., relate the parts and the whole (Geanellos, 2000) for the open-ended queries.

Data analysis invokes a hermeneutical model in order to identify textual data because its basic question is: what is the meaning of such text? (Radnitzky, 1970) Besides, Tan, Wilson and Olver (2009) advocate that a systematic and continuous process (feedback amongst the parts and the whole) enables an interpretive and detailed analysis. For this achievement, the authors enabled seven analytical procedures (Mayring, 2003): (i) proper communication model (empirical results); (ii) systematic and rule-based analysis (content units); (iii) interpretive categories reviewed through feedback loops (two reviews); (iv) reference to subject instead of technique (open-code structure); (v) verification of instruments (pilot analysis—Kikot et al., 2013); (vi) theory-guided analysis (GBL literature); and (vii) trustworthiness (authors' procedures). The open-code structure was ID section_ID query_ID subject_code body. As a final note, translation was avoided to minimise the loss of sensitive meanings.

3.3.2 Survey design protocol

The students' questionnaire (24 questions) was structured as follows:

- section one (participant profiling - 8 queries): biographical information, such as gender, age, working experience, prior experience in playing serious games or simulators and frequency of computer gaming;
- section two (game-based learning - 8 queries): includes students' GBL awareness, as well as assessment of GBL basic features and lecturer role during the game;
- section three (*Cesim SimBrand* assessment of the game - 4 queries): learners' experience with simulation/serious games, their perception of usefulness in learning and willingness to try out such games in other course units;
- section four (background assessment - 4 queries): learners' preparation to play *Cesim SimBrand* and satisfaction of their expectations.

The survey encompasses a blend between open-ended and close-ended queries. To close-ended questions, participants were provided with a list of options and asked to justify their choices. However, even simple "yes-no" responses were followed up by an open-ended query

to explain their choice. A final note regarding the completion time: authors had reminded learners 3 times during a period of 45 days.

4. DIAGNOSIS

4.1 Game delivery

Marketing Simulation is an optional course unit that explores *Cesim SimBrand* for leveraging learners' skills and knowledge. During this academic year, 31 students are enrolled, and the scenario is to run a selling company for smartphones in Asia and Europe. Learners are playing the game during 10 rounds (each round is equal to one year of the company) outside the classroom environment in order to avoid extra time constraints (lecturer decision); the classroom time period is devoted to debating results and analysing decisions (differences).

The most notable pattern in implementing *Cesim SimBrand* is the explicit connection among various subjects (curriculum) to reinforce concepts and improve knowledge sharing. After each round, the lecturer conducts a mini-quiz within the classroom which fosters participants' understanding of their decisions and activates their pre-knowledge. For example, while learners choose their advertising and communication channels options, as well as the investment, the lecturer asks them to describe procedures and estimate the cost per product. Throughout the discussion, the lecturer relates concepts to procedures within the simulator.

The lecturer pointed out some game strengths; however, the most important strength is the real experience that is typically not available. In the informal conversations with the lecturer, other benefits and drawbacks concerning game delivery and curriculum support were analysed.

4.2 Learners' pre-perceptions

At the beginning of the course unit, participants felt uncertainty about their potential experiences with the simulator because none had tried serious games before. After 2 practice rounds, informal conversations were conducted to understand participants' beliefs and expectations about game playing.

Primarily, they expressed high interest and enthusiasm in this novel learning tool and pointed out engagement and learning support as key features. This enthusiasm and confidence about their knowledge can be explained by the game environment (similar to a real company), as one German Erasmus student comment denotes: "I would like my parents see me, how I wake up in the morning and with what enjoy and enthusiasm I am visiting these classes, usually happens absolutely different."

5. FINDINGS

5.1 Learners' profile

The survey was designed through LimeService to gauge students' perceptions of the business simulation game *Cesim SimBrand*, and it was made available to learners via link distribution by the lecturer. To ensure a non-biased feedback from respondents, no incentive was provided to complete the survey and no additional effort was promoted; the exception was three reminders via emails to students. The survey was kept completely anonymous in spite of requiring participants to provide their gender and age, and it abided by UAlg's Research Ethics Board policies for research involving human participants. From 30 invitations sent to enrolled students, a 50 percent response rate for completed ones was verified.

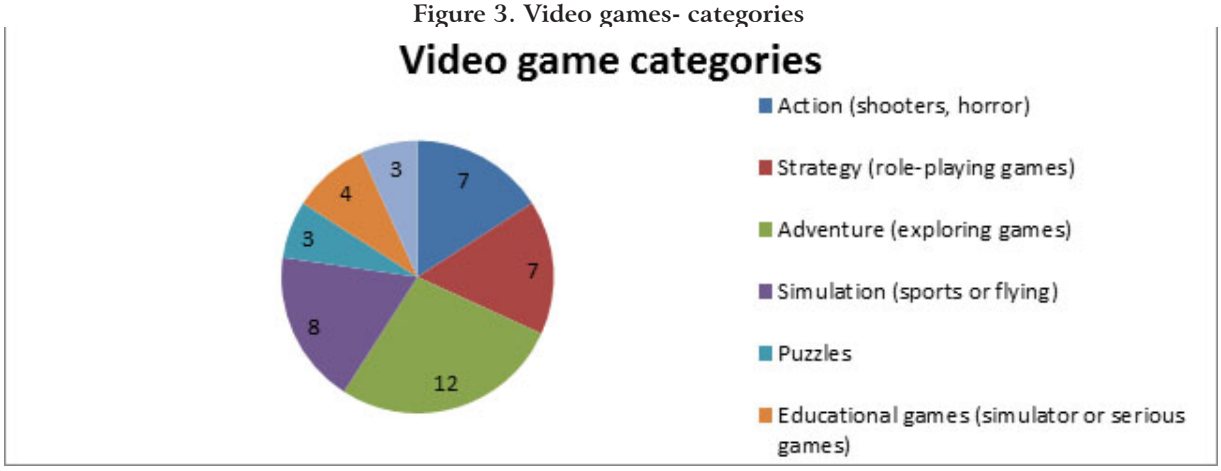
The profile of participants regarding age and gender were: (i) about 25% were between 23-25 years old, and, as expected, the majority (53%) ranged between the ages of 21-22; (ii) 5 respondents (or 33%) were female and 10 (67%) were male. When asked about video game playing, the common answer from all participants was yes; however, as shown in figure 2, 7 (or 46%) reported less than 1 hour per day doing it. Five participants (or 33%) responded between 1 and 2 hours daily and, finally, two learners (or 13%) acknowledged 2 to 3 hours daily.

Figure 2. Video games- hours of playing

Source: Own elaboration

The graphical summary for game categories played by the participants is in figure 3. Participants were provided with a list based on GameSpot website categories, and they could choose more than one category. However, as previously stated, none had prior experiences in simulation/serious games within educational environments.

Figure 3. Video games- categories



Source: Own elaboration

Adventure games were the most popular category, since 12 participants had chosen it including 5 females. The next most popular category was simulation games in sports or flying, which was acknowledged by 7 participants (4 of them were females).

5.2 Learners' awareness

Within section 2, participants shared their awareness about simulations/serious games; the majority (58%) declared their awareness concerning GBL and its features (see table 1).

Table 1. GBL awareness

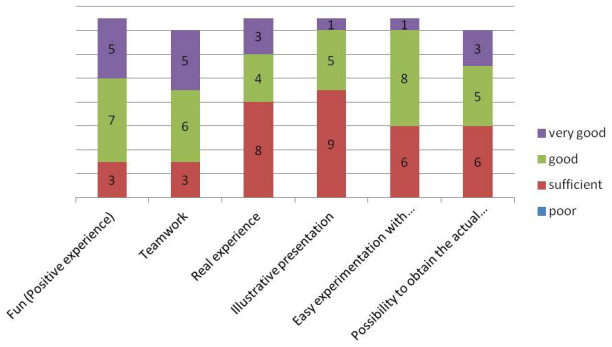
Section 2- Query 10- Give your definition about GBL				
ID	**Gender**	**Age**	**Remark**	**Analysis**
9	Male	25	[1]*Simulação de um mercado real*	[1]GBL features (simulated environment)
10	Male	21	[1]*Jogos que procuram ensinar algo, jogos educativos por exemplo*	[1]Educational games
17	Female	21	*Na disciplina de Simulação de Marketing aprendemos várias componentes relacionadas com gestão de produto e publicidade por exemplo e a importancia que cada uma delas tem no sucesso de uma empresa por exemplo*	[1]GBL features (simulated environment)
22	Male	39	*Aplicação de teoria em cenário de jogo. Estimulando a aprendizagem através da competição.*	[1]GBL features (simulated environment) [2]Competition
25	Female	23	[1]*Utilizarmos um jogo com o intuito de interiorizar conceitos :-)*	[1]GBL features (simulated environment) [2]GBL features (decision making)
32	Male	22	*Jogar, atraves de um simulador ou de um jogo, com fins a aprender conteudos educacionais*	[1]GBL features (simulated environment) [2]GBL features (simulated environment)
2	Male	36	*Game-based learning é uma forma de apredizagem em cenários virtuais*	[1]GBL features (simulated environment)"

Source: Own elaboration

The most common answer was real environment *stimuli*; although, when asked about their advantages and disadvantages, 90% pointed out "learning engagement" and "illustrative presentations" (advantages) since they bring real competition to the game. This was a key issue to challenge them to succeed and, consequently, gain a better understanding of business major areas. The characteristic "teamwork" is very controversial because some deemed it as an advantage (decision expansion) while others revealed dissatisfaction with their performance in the game as a result of their partners' lack of responsibility or poor capability to negotiate.

Interestingly, a third of learners mentioned difficulties about the description of rules and delivery of results, as well as the "problem-solving" process (improvement for the lecturer); the elder group denoted some errors in the *Cesim SimBrand* structure. This makes it less real, and participants lost interest in playing.

Figure 4. *Game-based learning- features*



Source: Own elaboration

Primarily, the lecturer role denoted guidance throughout the process and motivation (continuous usage); these answers revealed similarities with other learning tools (e.g., e-learning).

Table 2. Lecturer role

Section 2- Query 15 Which is the lecturer role in a course unit which applies game-based learning?				
ID	**Gender**	**Age**	**Remark**	**Analysis**
9	Male	25	*Explicar como o jogo funciona*	[1]Guidance
10	Male	21	*Ajudar-nos no início e ensinar-nos as técnicas*	[1]Guidance
11	Male		*Explicação, motivação e esclarecimento de dúvidas.*	[1]Guidance [2]Motivation
12	Male	22	*Ajudar, explicar, orientar*	[1]Guidance
14	Female	21	*Para nos ir guiando e orientando durante o jogo*	[1]Guidance
16	Male	24	*Orientar*	[1]Guidance
17	Female	21	*Orientar os alunos*	[1]Guidance
22	Male	39	*Estimular o uso do jogo*	[1]Motivation
24	Male	25	*Dar orientações/dicas do que pode ser feito*	[1]Guidance
25	Female	23	*Auxiliar com o seu conhecimento e estimular a competitividade*	[1]Motivation [2]Guidance
32	Male	22	*Orientar, motivar, explicar e educar*	[1]Motivation [2]Guidance
2	Male	36	*O docente explica e orienta os alunos para o sucesso na execução das tarefas em simulação*	[1]Guidance

Source: Own elaboration

5.3 Learners' experiences

The analysis of game-based learning promoted the following empirical results (see table 3):

Table 3. Game-based learning- Benefits and pitfalls

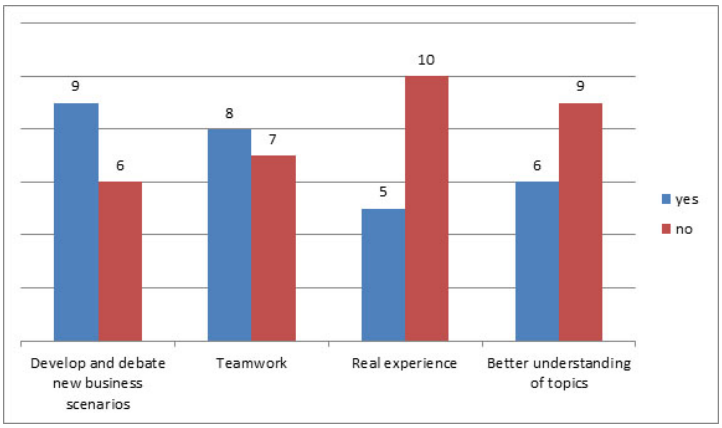
Section 3- Query 14- Which characteristics from the previous question do you consider advantages or disadvantages? Please justify that.				
ID	**Gender**	**Age**	**Remark**	**Analysis**
10	Male	21	*[1]Talvez seja divertido para quem [2]tenha mais tempo para usufruir de tal programa.*	[1]GBL features (Learning engagement) [2]Lack of time
11	Male		*[1]A experiência próxima da real que se consegue ter, no entanto apesar do esforça para se assemelhar (to make alike, to compare) [2]à realidade tem grandes gafes na sua estrutura*	[1]GBL features(real experience) [2]Errors in game structure
14	Female	21	*[1]vantagem- proporciona uma experiencia real, é um ótimo simulador da realidade e [2]muito divertido, desperta um sentido de [3]competição entre os alunos saudável.*	[1]GBL features(real experience) [2]GBL features (Learning engagement) [3]Competition
17	Female	21	*[1]O facto de proporcionar uma experiência real e obter resultados reais são para mim as principais vantagens, [2]pois motiva-nos a fazer mais e melhor para garantir o sucesso da nossa empresa*	[1]GBL features(real experience) [2]Motivation to succeed
23	Male	21	*fomenta o trabalho de equipa devido a sua competição ser realizada em equipas*	[1]Competition

25	Female	23	*As diferentes materias podem ser uma desvantagem visto não termos bases suficientes de outras disciplinas para o fazer*	[1]Not knowledgeable to play
32	Male	22	*Tudo o que envolve resultados ou experiencias reais são desvantagens porque não é o que acontece, é um jogo, mas não se aproxima assim tanto da realidade*	[2]Errors in game structure
2	Male	36	[1]*"Trabalho em equipa" é uma vantagem, porque mediante (thanks to, by means) as matérias dadas em aula, as ideias são debatidas com o obetivo de alcançar a melhor decisão.* [2]*"Fácil experimentação com diferentes matérias" considero uma desvantagem, não é fácil experimentar e perceber os resultados obtidos. requer muita prática*	[1]GBL features (teamwork) [2]Require improvement in rules and results description

Source: Own elaboration

As noted, the main concern of learners was game performance: the level of reality and diversity concerning decisional scenarios. Another important empirical finding is autonomy, i.e., a declared preference for decision making within the classroom. Learners also pointed out changes in their work procedures, namely novel business scenarios, "real" experience and comprehension of new topics (figure 5).

Figure 5. *Game-based learning- features*



Source: Own elaboration

Even so, the overall positive experiences induced respondents to express their willingness to explore GBL in course units such as strategy or business analysis (table 4).

Table 4. Course units- future exploration

Section 3- Query 14- Would you like to explore game-based learning in other course units? Why? In which ones?				
ID	**Gender**	**Age**	**Remark**	**Analysis**
10	Male	21	*Cadeiras mais estratégicas*	[1]Strategy
12	Male	22	*A competitividade e a variante "jogo" desperta muito interesse por parte dos discentes*	
23	Male	21	*Economia*	[1]Economics
32	Male	22	*Análise de investimentos, entre outros*	[1]Investment Analysis [2]Strategy
2	Male	36	*Análise financeiras/Business analysis*	[1]Business Analysis

Source: Own elaboration

5.4 Learners' preparation

In addition, students have been asked about their sense of preparation (prior acquired skills) to explore *Cesim SimBrand*. 53% felt prepared, and some (a third) declared that two practice rounds and previous knowledge acquired during the bachelor helped them greatly. However, the remaining ones felt unprepared, and these results require a more extensive analysis. Overall, participants expressed their satisfaction after playing *Cesim SimBrand*, despite early suspicion that "we were expecting the worse" (survey participant 32). In fact, throughout the process, students felt that they had learned more than anticipated and considered it very positive.

6. LIMITATIONS AND FUTURE WORK

6.1 Methodological limitations

A trustworthy qualitative research recognises an effort for meaning or validity about data collection (Huxham and Vangen, 2003), so literature acknowledges four quality standards: (i) credibility, results' accuracy through member checking; (ii) transferability, "thick description"; (iii) dependability, record of the research process and documentation; and (iv) conformability, data audit. Hence, a systematic approach through interpretative flexibility to open-ended queries (content analysis) is rigorous despite potential subjectivity.

The survey protocol response rate (50%) can be criticised; however, the interesting insights from empirical evidence verifies the author's option. Besides, its design does not promote a negative influence over a qualitative numerical approach and interpretive flexibility (Doherty et al., 2006; Šuc, Vladušič and Bratko, 2004). Additionally, the authors are aware of the challenges of a "non-main stream" data analysis (for example, see Bowen, 2005).

6.2 Tools and data analysis upgrade

With a well-designed survey, the following step for data collection tools is with either individual or focus group interviews. While individual, semi-structured interviews will allow comprehension about peoples or opinions, focus groups enable the expression of feelings or perceptions not expressed individually (Gall, Gall & Borg, 2003). This option can be particular useful for sensitive issues on learners' opinions (lecturer's role during the game). Some keen examples are related with a data analysis upgrade, i.e., to figure out why cooperation or team work can be a controversial topic.

7. CONCLUSIONS

This research aims to understand a simulation game's advantages and disadvantages within Marketing courses, namely the business simulator *Cesim SimBrand*. Despite some pitfalls, such as the stage development of games, learners revealed positive experiences and better learning engagement.

Since traditional educational environments are often not flexible (Santos et al., 2013), experimentation with a blended approach (traditional and novel learning practices) can occur to minimize educational issues (Duarte and Martins, 2013). Beyond the advantages for learning, when a game is well established, it is a cost effective method; however, these require proper planning and technological/social structures that enable their integration into a formal program. Finally, this research exhibits a need for the development of curriculum materials in order to support a lecturer's efforts to teach and assess while exploring the game.

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INFORMATION TECHNOLOGY AND THE NEED FOR CLEAR COMMUNICATION FOR EFFECTIVE USER'S APPROACH

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ABSTRACT

The present study addresses the communication between professionals of information technology (IT) and its users in the corporate environment of Curitiba (Brazil). The main aim was to analyze communication problems and implications for management and marketing. Empirical research examined responses from a sample of IT professionals with some professional experience in the area and academic level, as well as responses from a sample of IT users (making use of technology in that corporate environment). The questionnaires were available online, and the SPSS software was used for data processing. Results allow us to infer that, in the sample studied, problems in communication between IT professionals and the services' users do exist. Data obtained reflect a need for formal training by the professionals to serve customers, manage their careers and use technology on behalf of users in order to improve business management practice. Professionals must be clear with users, to create confidence. Also, it was evident that respondent users consider technology as a basic tool, and they expect professionals to share and explain their actions toward the machine or system. This research makes some implications obvious in relation to communication processes in the IT field for management and marketing.

Keywords: Information Technology, Communication, Interaction, Management, Marketing

JEL Classification: M15

1. INTRODUCTION

Globalization and, consequently, information technology (IT) changes introduced technical and foreign terms in professionals' vocabulary due to a logical need of explicit use. However, those expressions, which became part of many organizational routines, are not always understood by the users. The technical language naturally broadened vocabulary, placing it even more in contact with the English language ('language of globalization'). Furthermore, technology develops itself faster than the capacity of Portuguese or other languages to assimilate all new concepts and find the correct terms. Thus, certain strategies are needed to improve communication for better management support.

These situations are the focus of this study as many communication problems result from the fact that the consumer (user/client) not always dominates, or just does not know, several terms in the IT field. This study does not consider that professionals deliberately choose words that are difficult understand or that customers are uncultured. What we discuss are the consequences from the inherent semantic problem because the understanding level of

what is said can influence the level of confidence, making a difference in a negotiation (Gaete, 2010; Hanson, 2010; Partala and Kallinen, 2012).

Effective interactivity has vital importance once the option of using or not using a tool (or a system) is affected. The technician should be aware of this issue and establish a plan to understand and make himself understandable (Cassarro, 2011). Professionals must be flexible and able to adapt to specific, local, regional and semantic situations. It is relevant to capture what the consumer understands and, especially, what he/she really needs. The identity and clarity between parts open paths to strengthen confidence relations between IT professionals and users. Professionals should have personal marketing as a strong ally for the continuity of users' loyalty. This is created through confidence in a given service, based on clear communication, adapting knowledge and vocabulary. Clients do not only buy products but also services (Madia de Souza, 2007); thus, in the IT field, they do not only search for equipments or programs but also for security, information organization and problem solving. Consequently, they demand technical support and, sometimes, personal support because there are still users that resist technology and systems.

According to these considerations, the subject of this study was defined as communication processes in the IT field and its impacts on management and marketing. This research, with a theoretical and empirical basis, has an interdisciplinary nature involving management, marketing, information systems and communication. The main objective is to analyze the communication defects between IT professionals and users of their products and services, discussing some challenges to management and marketing.

This study addresses the communication between professionals of IT and its users in the corporate environment of Curitiba (Brazil). The underlying empirical approach examined responses from a sample of IT professionals (adults of both genders) with experience in the field and academic curriculum. It also examined responses from a sample of IT users (adults of both genders) who use platforms/systems/tools in that corporate environment. The questionnaires were available online, and we used the statistical software SPSS (version 17.0) for processing the collected data.

2. THEORETICAL FRAMEWORK

One deficiency was detected from previous researches (Wurman, 2005; Mattana *et.al*., 2006; Kunsch, 2007; Cunha, 2009; Cassarro, 2011; Rezende, 2011; Silva, 2011): users are not always familiar with technology or able to express themselves, and the professional who deals directly with the public does not always have the communication ability to guide the user. The complete training of future, active professionals needs to make them capable to explore and adapt the full power at their disposal. This study aims to highlight the importance of guiding individuals that play different roles in society, both IT users and professionals, in order to have the ability to maintain clear and effective interpersonal communication.

There is awareness that there must be a closer approach between population and technology, in relation to both individual and corporative performance, and there are proactive actions from some government strategies (Takahashi, 2000; Warschauer, 2006). Educational, organizational and government systems have expressed concern regarding the expansion of the IT area, not to become an isolation factor but to incorporate interaction and appropriation of information in society. There are numerous projects working on the comparison between traditional fields of education and the IT field (Gonçalves et al., 2013).

Organizational intelligence and strategic alignment of IT resources with business strategies and plans are currently the issues for more success in an organization, either public or private. Thus, a firm's strategic marketing should be complementary to the information

systems planning (Rezende and Abreu, 2010; Polizelli and Ozaki, 2008). It is evident that there is a close relation between the concepts of business intelligence, relationship marketing, information systems planning and knowledge (Fernandes, 2013). There is a need for organizational intelligence to be exercised, and the management of data and information add value to the product or service offered, aiming to make the difference to customers.

Organizations need to provide quality in their products and services, maintain service excellence and be alert to changing market conditions. It is also essential that an accessible and transparent language exists in communication with customers, anticipating their wishes and needs. In organizational terms, this study intends to encourage some thinking and development of interventional projects that aim at solving or overcoming noise[1] in the communication process in the IT field. Some key issues for a successful management need to always be in vogue: communication skills, information understanding (an influent factor on reliability), etc.

Technological learning by professionals may bring benefits to management such as: complex projects' expansion; their own training (identification of weaknesses/strengths); interactivity or interpersonal communication (which is different in business and education fields); customer's understanding of machine/system's operation (and realizing the benefits from its adoption); and natural man-machine integration, which improves management due to easier decision making from significant time reduction in problem solving (Rios, 2006; Costa, 2007; Gaete, 2010; Hanson, 2010; Allameh *et al*., 2011; Ignatius *et al*., 2012, Sun and Hsu, 2012; Miwa and Terai, 2012; Partala and Kallinen, 2012).

The conquest of future loyalty to products/services requires that users understand the machine or system's operation and realize the benefits from its adoption to analyze if a certain technology is needed in their lives. In the digital world, *viral* marketing (also known as *word of mouth*) is very strong, such as a social network's discussion on a service; this form of marketing can be allied to satisfaction and trust (Giglio, 2010; Hanson, 2010; Matos, 2011; Liu, 2012). Thus, it is interesting to consider communication within different IT contexts. The spread of the internet ends up creating new options and, subsequently, a range of needs. The exploration of different users' profiles and distance-learning opportunities is just a small portion to be explored.

2.1 Research questions

Considering the objectives that were mentioned and the theoretical framework, these main research questions (RQ) were addressed:

RQ1- It is important to consider the user's knowledge in the IT field for a more efficient communication.

RQ2- The IT professionals are prepared, in terms of communication, to assist the users.

RQ3- It is important to build a screenplay (guide for conducting the approach to user) to capture the reality of each user.

RQ4- Problems tend to be solved when there is feedback from the user to the professional about the information system.

[1] Failure or undesirable disturbance in any communication process which may cause deviations or damages in the message.

3. METHODOLOGY

3.1 The questionnaire

This study addresses the communication between professionals of IT and its users in the corporate environment of Curitiba (Brazil). The underlying empirical approach examined responses from a sample of IT professionals (adults of both genders) with experience in the field and academic curriculum. It also examined responses from a sample of IT users (adults of both genders) who use platforms/systems/tools in that corporate environment.

The questionnaire, both for professionals and users, was divided into two parts. The first one gives information on the profile of each respondent. The profile variables include: gender, age, scholarship, charge/activity and action level. The second part is composed of 16 closed questions (both in the Professionals' questionnaire as well as in the Users' questionnaire) with a Likert response structure (1=totally disagree; 2=partially disagree; 3=partially agree; 4=totally agree). Not all the questions were used in the present work, as we worked only with the ones related with the research questions (RQ) formulated. The derived variables that are most related with this research are presented in the following tables:

Table 1. List of Variables from Professional's questionnaire

Variable number	Variable from Professional's questionnaire
P1	In assisting the user, no need to keep explaining him all the details of the intervention in the system
P4	English terms cannot always be translated as there is no equivalent in Portuguese and translation can distort meaning
P5	Must have user's feedback, related with system/computer and communication process, for the necessary improvement
P6	It is important to consider the user's knowledge with respect to IT
P7	Sometimes an expression is so basic that IT professional does not realize that user may not know it
P8	Each client/user requires a different assistance approach
P9	In IT professional's academic graduation there was training on customer service/assistance
P10	The IT professional knows much better user's needs than the user himself
P11	System's complexity should be reduced to facilitate user's understanding
P12	Some terms reflect the real speed of IT changes and may not be sufficiently clear to users
P13	The use of technical terms streamlines communication processes in the IT field
P15	Over time IT professional realizes the importance of having a clear communication with the user
P16	The more qualified IT professional is, less contact with the user he has

Source: Own elaboration

Table 2. List of Variables from User's questionnaire

Variable number	Variable from User's questionnaire
U1	By experience IT professional realizes user's needs despite he cannot explain them
U2	It is important to give feedback to IT professional concerning the system/computer and communication for the necessary adjustments
U4	Technology can be a source of benefits and job security
U6	Everyone should know IT well, not only the IT professionals
U11	The user strives to facilitate his interaction with the IT professional
U13	IT professional needs to consider user's reality in assisting him

Source: Own elaboration

3.2 Sampling procedures

The studied sample is composed of two sub-groups: one with IT professionals and the other with IT business users. Since it was not possible to be precise about the number of professionals in the city of Curitiba, who may be linked to companies or autonomous (a common situation in the IT field), or about the number of users, the procedure for unknown populations is recommended (Stevenson, 2001; Neufeld, 2009; Luchesa and Chaves, 2011):

$$n = \frac{z^2 p(1-p)}{e^2}$$

$$n = \frac{1{,}96^2 \times 0{,}5(1-0{,}5)}{0{,}05^2}$$

n≈≈384 cases

Where:
p= estimative for the statistic unit percentage that verifies the characteristic (usually, the most conservative value used is 0.5)
e= margin of error of the confidence interval
z= statistic value of confidence degree

The dimension of this defined sample implies 384 questionnaires, both for professionals and users. The questionnaire was published online, and an email with its link was sent to 500 IT professionals and 500 IT users, in order to obtain the necessary composition of the sample. We obtained 135 responses from professionals, equivalent to a 27.0% response rate (a response was then excluded due to some errors), and 108 responses from users, equivalent to a 21.6% response rate (a total of 243 cases). Although these rates seem to be low, it is important to refer to other experiences with electronic surveys that have already shown that this kind of research presents a response rate lower than 25% (Scornavacca Jr., Becker and Andraschko, 2001; Maier and Remus, 2002; Cohen, 2003; Graeml and Csillag, 2006; Antonelli and Santos; 2009; Silva, 2011).

Furthermore, the application of this research is restricted to Curitiba, unlike other studies that have a wider dissemination or a national level. Another aspect is that participation in the survey was completely voluntary; those who participated, after knowing the purpose, kindly accepted or did not accept the invitation. This was done in order to increase the probability of trustworthy answers, thereby increasing the reliability of the study. Also, the dimension of a sample must be at least four to five times greater than the total of variables (Malhotra, 2006). In this research, considering that the questionnaire has 16 objective questions plus 5 open ones (totaling 21 questions), the number of answers should be around 84 to 105. We obtained 108 from users and 135 from professionals, meaning that a valid number was obtained to meet the requirements.

This research intends to increase the experience and knowledge around this bounded, linguistic situation in which the researcher, based on some research questions, intensifies the analysis of the limits of this specific reality. These descriptive and exploratory researches are common when there is a concern with the practical actions of the researcher (Sanchez, 1999; Barquette and Chaoubah; 2007; Gil, 2008).

4. RESULTS

4.1 Sample characterization – IT professionals

Regarding age group, it is observed that younger people prevail in our sample, comprising 84.56% (44.85% up to 25 years old, and 39.71% from 26 to 35 years old), while only 15.44% are over 35 years old (12.50% from 36 to 45 years old, and 2.94% from 46 to 59 years old). There were no respondents aged 60 years or older. Regarding gender, it is observed that 77.21% of the 135 respondents are male, demonstrating that there is still a strong predominance of male professionals in the IT field, which confirms the information presented in the Green Book (*Livro Verde*) (Takahashi, 2000).

Intersecting information about post-graduation level and last year of scholarship, 46% of professionals that participated in the survey had completed or almost completed their graduation. Thus, among the 135 professionals, only 62 have post-graduation, which may reinforce that, in the IT field, even without completed graduation the professional is already inserted in the job market. This causes some questions to arise: Does this mean the professional is somehow immature in dealing with the user? Is there a trend of young people looking for post-graduation programs? Are post-graduates the older ones?

The prevalent charge or kind of activity among the respondent professionals is analyst (50.74%); this is followed by support/assistance (13.24%) and then supervisors (9.56%). The other significant portion (22.06%) is composed of professionals who work in diversified fields such as programming, development and management. According to their level of action, the predominance of operational professionals (61.94%) is noticeable, followed by those at the tactical level (20.90%) and strategic level (17.16%).

Table 3. Distribution of answers - Professionals

Variables	Distribution of answers
Professional's age:	
Up to 25 years	44,85%
From 26 to 35 years	39,71%
From 36 to 45 years	12,50%
From 46 to 59 years	2,94%
Over than 60 years	0%
Professional's gender:	
Male	77,21%
Female	22,79%
Professional's scholarship:	
Uncompleted graduation	26%
Graduation	23%
Specialization in progress	24%
Completed specialization	18%
Master's degree in progress	5%
Completed master's degree	4%
Doctorate in progress	0%
Completed doctorate	0%
Professional's charge/activity:	
Owner/partner	4,41%
Supervision/coordination	9,56%
Analyst	50,74%
Support/assistance	13,24%
Other	22,06%
Professional's action level:	
Operational	61,94%
Tactical	20,90%
Strategic	17,16%

Source: Own elaboration

4.2 Sample characterization – IT users

Regarding age group, respondent users are concentrated in two intermediate ranges: 39.81% in the group from 26 to 35 years old and 35.19% from 36 to 45 years old. We notice that, as with professionals, there were no respondents with an age over 60 years. Regarding gender, contrary to professionals, both men and women use IT similarly and had almost the same percentage: 49.07% were male and 50.93% female.

Table 4. Distribution of answers - Users

Variables	Distribution of answers
User's age:	
Up to 25 years	16,67%
From 26 to 35 years	39,81%
From 36 to 45 years	35,19%
From 46 to 59 years	8,33%
Over than 60 years	0%
User's gender:	
Male	49,07%
Female	50,93%
User's scholarship:	
High School	3,70%
Uncompleted graduation	21,30%
Completed graduation	14,81%
Uncompleted post-graduation	6,48%
Completed post-graduation	53,70%
User's action level:	
Operational	54,29%
Tactical	17,14%
Strategic	28,57%
User's main activity:	
University teaching, coordination of courses and projects	23,13%
Administrative assistance, secretary, public service	18,5%
Accounting, management, banking, taxes	9,26%
Advocacy, registry	8,32%
Administrative analysis, systems analysis	7,38%
University internship	5,56%
Industry, engineering	4,62%
Human resources	1,84%
Other[2]	21,39%

Source: Own elaboration

A feature we highlight in users is their level of education; at one extreme there is the group with complete post-graduation (53.70%), and at the other extreme there is the group with high school education (3.70%). As there was no obligatory orientation for disseminating the questionnaire, almost 75% of the respondent users, having at least completed graduation, indicated that scholarship level influences the adoption of IT as a work tool. Concerning their action level, it is observed that the majority of users belong to the operational level (54.29%), while the others are divided between tactical (17.14%) and strategic (28.57%) levels.

These users' main activities are distributed in 9 categories, from courses/projects coordination to administrative analysis and others. Categories included are either autonomous, such as lawyers and engineers, to technical support, such as teachers and supervisors. Responses emphasize that the highest percentage was concentrated in university teaching/coordination of courses and projects (23.13%), while the lowest was in human resources (1.84%). All of these individuals somehow use IT in their professional activities.

[2] Travel agency, marketing, sales, medicine, architecture, consultancy, etc.

4.3 Research questions verification

Average values and standard errors were used in order to verify the research questions proposed. Given the Likert response structure used in the questionnaire (1=totally disagree; 2=partially disagree; 3=partially agree; 4=totally agree) we can identify the average values indicating agreement (above 2.9) or disagreement (below 3.0). The consistency in the answers can be observed through the standard deviations.

In order to verify *RQ1- It is important to consider the user's knowledge in the IT field for a more efficient communication,* we used information from P6, P8, U1, U11 and U13.

Table 5. *RQ1* **testing**

	N	Average	Std. Dev.
P6 - It is important to consider the user's knowledge with respect to IT	135	3,56	,676
P8 - Each client/user requires a different assistance approach	135	3,69	,480
U1 - By experience IT professional realizes user's needs despite he cannot explain them	108	2,27	,903
U11 - The user strives to facilitate his interaction with the IT professional	108	3,43	,726
U13 - IT professional needs to consider user's reality in assisting him	108	3,83	,399

Source: Own elaboration

These results show that the professional agrees with both the importance of considering a user's knowledge in IT and the need of changing the approach according to each user. At the same time, users strive to facilitate interaction with the professional who needs to consider the user's reality. Based on their experiences, users do not agree that the IT professional realizes a user's needs without an explanation.

In order to verify *RQ2 - The IT professionals are prepared, in terms of communication, to assist the users,* we used information from P1, P9 and P15.

Table 6. *RQ2* **testing**

	N	Average	Std. Dev.
P1 - In assisting the user, no need to keep explaining him all the details of the intervention in the system	135	2,56	,843
P9 - In IT professional's academic graduation there was training on customer service/assistance	135	2,39	1,072
P15 - Over time IT professional realizes the importance of having a clear communication with the user	135	3,88	,324

Source: Own elaboration

This table shows that IT professionals do not agree with either the lack of need for explaining all the details to users or the existence of training on customer assistance in their academic graduation. Over time, professionals realize the importance of having clear communication with IT users.

In order to verify *RQ3 - It is important to build a screenplay (guide for conducting the approach to user) to capture the reality of each user,* we used information from P5 and P8.

Table 7. *RQ3* **testing**

	N	Average	Std. Dev.
P5 - Must have user's feedback, related with system/computer and communication process, for the necessary improvement	135	3,77	,422
P8 - Each client/user requires a different assistance approach	135	3,69	,480

Source: Own elaboration

These results acknowledge that IT professionals agree with both having users' feedback related with the system and communication processes as well as the consequent need of having different assistance approaches.

In order to verify *RQ4 - Problems tend to be solved when there is feedback from the user to the professional about the information system,* we used information from P5, P11 and U2.

Table 8. ***RQ4*** **testing**

	N	Average	Std. Dev.
P5 - Must have user's feedback, related with system/computer and communication process, for the necessary improvement	135	3,77	,422
P11 - System's complexity should be reduced to facilitate user's understanding	135	3,41	,892
U2 - It is important to give feedback to IT professional concerning the system/ computer and communication for the necessary adjustments	108	3,65	,517

Source: Own elaboration

According to these results and the fact that IT professionals agree with both the need of having users' feedback and reducing the system's complexity, users agree with the importance of giving their feedback to professionals concerning the system and communication processes.

4.4 Summary of results

From the research questions' verification, through analyzing the answers obtained in both questionnaires, the results about their confirmations or discards are summarized in the following table:

Table 9. Research questions' summary

Research questions (RQ)	Results
RQ1- It is important to consider the user's knowledge in IT field for a more efficient communication	Confirmed: once the majority of respondent professionals agree with the need to consider the user's knowledge in order to turn communication more efficient. This positioning is more theoretical[3] than practical (it reflects the problematics of this research)
RQ2- The IT professionals are prepared, in terms of communication, to assist the users	Discarded: as many respondent professionals start acting without sufficient training or preparation. The awareness of this issue occurs as time passes, what may undermine professional's performance
RQ3- It is important to build a screenplay (guide for conducting the approach to user) to capture the reality of each user	Confirmed: as respondent professionals consider important the adequate approach to know customer needs. Once more, a theoretical positioning is observed reinforcing this problematics
RQ4- Problems tend to be solved when there is feedback from the user to the professional about the information system	Confirmed: both respondent users confirmed the importance of giving their feedback and professionals recognize this importance

Source: Own elaboration

Regarding the fulfillment of the overall objective of this research, verification occurs of several management and marketing impacts from communication issues between IT professionals and users of their platforms/services. Those impacts are systematized below, keeping in mind the research questions (RQ) analyzed.

The confirmation of RQ1 has implications on firms and an IT professional's career management, as the professional needs to gather information about the user in order to enhance communication efficiency and, consequently, reach his goals.

[3] Related with the "agree" kind of answers.

The discarding of RQ2 has serious implications on marketing, due to the professional's unpreparedness in approach, relation and positioning strategies. There are further implications on his/her career management as he/she lacks guidance in their management, thereby weakening the relationship with the customer.

The confirmation of RQ3 has positive implications on an IT professional's career management and, consequently, on marketing because one of the strategies of a customer's approach in contemplating his/her reality and gathering attendance issues should be a screenplay. Although IT professionals consider it important to be prepared for a customer's approach, the obtained answers show that they do not use this strategy perhaps due to a lack of orientation in their own graduation process. This entails negative impacts, both for career management and personal marketing, because the professional's performance and image are affected.

The confirmation of RQ4 has management implications as feedback from the user gives the professional the necessary guidance. Therefore, it is required that IT professionals are determinate in searching for feedback to better know how to manage the received information in order to plan strategies for future contacts.

Thus, the importance of clear and efficient communication processes between IT professionals and users is confirmed since several management and marketing implications are evidenced, in both organizational and personal levels.

5. CONCLUSION

The obtained data acknowledge that IT professionals communicate using terms that hinder understanding by users. Results lead to the perception of a need for formal training and screenplay by IT professionals to serve customers, manage their careers and assist with technology on behalf of users. Professionals must be clear with users to create confidence, in order to improve business management practice. From the sample of users it was evident that they consider technology as a basic support. They expect professionals to share and explain to them their actions toward the machine or system, as well as to listen to what they need.

We can perceive that the manner of how the IT professional communicates with the user interferes with management because effective decisions cannot be made without clear information. The goals of both sides must be attained to get productive results for the organization. It is important that IT professionals incentivize effective communication processes with users because their performance tends to be autonomous, and they must manage their own career and care for personal marketing.

It is a challenge to create an effective communication process using IT technical language and search for management tools capable of bridging both sides: the vision of results by the customer and enterprise marketing goals with the objectives of IT professionals. The company that stands out for its efficient customer service and clear communication will certainly have more competitive elements than its competitors.

Each time, it becomes more necessary to create or explore a strength that may become the differential over competitors. Cultural adequacy may take years to happen, so persistence is required. The obtained results show that IT professionals usually act by intuition, without formalization or orientation that gives them more support and attendance parameters. Apparently, this behavior occurs without intention; in this way, many have worked it out by chance, but others went wrong without even knowing exactly where the problem lay.

In the context of change, the elementary principles oriented to the market must be in harmony with concepts and working methods that emphasize the ability of dealing with

social and cultural differences. Thus, if the techniques and marketing tools are designed to achieve business goals, they must be used to promote the minimization of misunderstanding concepts. A policy oriented to strategic communication makes the access to new markets easier, providing transparency and enabling vital partnership creation.

In order to survive in this highly competitive society, both people and companies rely on information. Thus, opportune and personalized information is essential for situational knowledge and analysis, intelligent planning and decision-making. This research will have fulfilled a role if at least a portion of IT professionals become aware about the relevance of effective communication in the vitality of an organization or professional career. There are still gaps whose resolution depends on a commitment between *awareness* and *action*. Each professional must find his own way of working with the communication process and, then, the personal marketing. These professionals must use their technical knowledge, personal experience and common sense to develop values such as understanding and contribution to a business vision.

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