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Social presence in virtual environments : increase intranet usage using social presence theory

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Master thesis

**Social Presence in Virtual Environments:
INCREASE INTRANET USAGE USING SOCIAL
PRESENCE THEORY.**

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Date: June 12, 2022

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**M2 – Advanced ReseArch in Management of
Information Systems
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SUMMARY SINTESI RESUMEN ZUSAMMENFASSUNG

Intranets are implemented in firms because of their well-known impact on their success. But companies complain that they are left unused by employees despite their various benefits. From a non-technical point of view, the reasons behind this include the users' perception of intranets lacking of warmth and human contact. Social presence theory or concept has been studied in various industries including e-commerce and e-learning throughout the years in order to increase levels of awareness of other human beings in virtual environments. This study investigates the relationship between social presence and the intentions to use intranet portals. To be able to do so, we followed an experimental approach where we developed an intranet homepage template with low social presence cues, duplicated it and manipulated social presence using socially rich texts and images. Surveys were created in order to assess the levels of social presence implemented and their influence on perceived usefulness, ease of use and intentions to use. The data collected from 85 participants was analyzed using SPSS software and the results showed us that there is a strong positive relationship between social presence and intentions to use intranet portals. This opens the path for future research and to dive deeper in this field in order to increase intranet usage.

RÉSUMÉ

Les intranets sont implantés en raison de leur impact bien connu sur la réussite des entreprises. Mais malgré leurs divers avantages, les collaborateurs hésitent à les utiliser. D'un point de vue non technique, cela peut être expliqué notamment par la perception des utilisateurs d'un intranet manquant de contact humain. La théorie ou le concept de présence sociale a été étudié dans diverses industries, y compris le commerce électronique (e-com) et l'apprentissage en ligne (e-learning), afin d'augmenter les niveaux de présence des autres êtres humains dans des environnements virtuels. Cette étude examine la relation entre la présence sociale et les intentions d'utilisation des portails intranet. Pour cette raison, nous avons suivi une approche expérimentale dans laquelle nous avons développé un modèle de page d'accueil intranet avec de faibles indices de présence sociale, l'avons dupliqué et manipulé la présence sociale à l'aide de textes et d'images socialement riches. Des enquêtes ont été créées afin d'évaluer les niveaux de présence sociale mis en place et leur influence sur l'utilité perçue, la facilité d'utilisation et les intentions d'utilisation. Les données recueillies auprès de 85 participants ont été analysées à l'aide du logiciel SPSS et les résultats nous ont montré qu'il existe une forte relation positive entre la présence sociale et les intentions d'utilisation des portails intranet. Cela ouvre la voie à de futures recherches dans ce domaine afin d'augmenter l'utilisation de l'intranet.

KEYWORDS: Social presence, intranets, TAM, présence sociale

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INTRODUCTION

We live in a world full of knowledge (Bottazzo, 2005) where its generation, submission, storage and integration is a source of utmost importance for organizations. Knowledge has been seen as a vital and extremely valuable asset (Bhojaraju, 2005; Hegazy & Ghorab, 2014). According to Schultze and Leidner (2002), knowledge has become the primary source of organizations. These latter are in a continuous competition to stay competitive (Ting Si Xue, 2017) and the sustainability of their competitive advantage is attained with the effective management of this knowledge. Along with competitiveness, organizations implement knowledge management using the internet in order to reach higher levels of effectiveness and efficiency (Schultze & Leidner, 2002).

Knowledge management systems and technologies enable organizations to acquire, retain, and use their knowledge resources (Kankanhalli et al., 2005; Greiner et al., 2007). These technologies include document management systems, search engines, databases and data warehousing, mining tools and of course, intranets which importance has grown with the growth of knowledge management (Skok & Kalmanovitch, 2005).

Intranets are not new in the vast technology world. Muller (2002) stated that the intranet is “a private TCP/IP network that usually supports the same protocols and services as the public internet including e-mails, news, chat rooms and web pages.” As part of the knowledge systems, they make a very important tool to allow the focus of this knowledge where employees can reach all the information they need for their daily work which enhances their productivity permitting them to save time looking in different and many sources. Aside of providing company related information, intranets permit email exchange between employees, provide departmental web pages, allows group communications, etc.

Organizations have realized the importance of the intranet as an empowering tool for their employees (Mphidi & Snyman, 2004) and Muller (2002) showed in his research

the importance of intranets for organizations as these latter implement them for the improvement of internal communications, distribution of information and access to company's systems. The access of these information on the intranet is not limited by time and space (Bottazzo, 2005) which makes its accessibility easy for the employees, especially the ones working remotely which was almost everyone's case due to the Covid-19 outbreak in the past two years. Intranet allowed the effective collaboration between geographically far employees, virtually and in a computer-based environment.

Intranets have matured throughout the years and became portals that can be accessed not only by employees, but by customers and suppliers as well and we have noticed a growing number of research publications on this topic from both technical and business point of views (Noorman Masrek et al., 2007).

Despite the great importance of intranets, gaps still exist as companies complain that their intranet portal is underused by their employees (Stenmark, 2006). After investigating previous literature, we found that people encounter negative feelings while surfing intranet. These feelings can be translated into loneliness, boredom, lack of interactions and connectedness. In other words, intranet users are well aware of the lack of the "presence" in this environment.

We have witnessed a huge and rapid technological advancement throughout the past years. Technology allowed the creation of virtual spaces like games, e-commerce websites, social media platforms, work designated software and web interfaces in general where graphics, whether two-dimensional or three-dimensional images, and appearance are mimicking real life environments in every way possible. Artificial intelligence and software are performing now tasks that were usually completed by humans which saved these latter time and effort and increased their productivity and efficiency. It also facilitated communication using its computer mediated communication tools in online learning, social life and work life. We are mentioning

this to show that as advanced, graphical and close to reality the technology may seem, some lack of the “presence”.

But what is this “presence”, and what is its effect on virtual environments? In a few words, presence has three types: Physical presence, social presence and co-presence.

In the virtual world, the term physical presence (or just presence) is commonly used to refer to a person's 'sense of being' in a virtual environment (Sheridan, 1992). Slater (1999) described presence as a psychological experience with three components: the sense of ‘being there’, individuals' responses to what is real or present, and how people remember the environment as a real life ‘place’. In other terms, it is “the subjective experience of being in an environment, even when one is physically in another” as Witmer and Singer (1998) argued. As for social presence, it was first developed by Short et. Al (1976) in attempt to compare face-to-face interactions to various media communication means and defined it as the “degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships”. So according to these researchers, intimacy and immediacy could be affected by these communication mediums. Hypothesis from different research concluded that to create sociable and warm interactions, social presence should be implemented in the communication mediums (Lombard & Ditton, 1997).

Previous studies explored how implementing social presence in virtual environments, most commonly e-com websites (Hassanein & Head, 2007), influences positively consumer intentions. However no studies examined how the implementation of social presence affects employees’ intentions to use. This study aims at finding the outcome of introducing the social presence concept to the web interface of companies’ intranet portals.

We will start with a review of previous literature defining intranet, its evolution, importance and adoption in organizations. Then, we will elaborate in detail the social presence theory and its impact on several industries to highlight its importance and

relevance to minimize the feelings of loneliness and increase the awareness of other people in the virtual environments. Finally, we will study the effect of the implementation of social presence cues in intranets and its impact on employees' intentions to use.

PART 1:
-
LITERATURE REVIEW

CHAPTER 1 – INTRANET

I. DEFINITION

The intranet first appeared in the early 1990s as a means of applying internet technology to internal company applications (Leung, 2001). The technology behind intranets is the same as the internet, the only different is that intranets are private while internets are public (Welch, 1996).

There are numerous definitions for Intranet. From a technical point of view, it is defined as a company network shielded by firewalls that fully utilize the internet technology, and from a functional perception, it is viewed as a system that enables business applications (Martini et al., 2009). It can be better defined as local computer within a firm's network created from web pages that look and function similarly to a web-site but can only be accessed by authorized employees (Capron & Johnson, 2004; Dlabay et al., 2006; O'Brien & Marakas, 2006). So the intranet is an internet technology that is used within an enterprise to enable quick and simple access to knowledge while protecting and ensuring safe and secure access to the data (Moussa, 2016). "It is a way of thinking and organizing people, work, and interaction" (Martini et al., 2009). To better understand the benefits of the intranet in corporations and highlight why firms are still considering and implementing intranets for various reasons in their operations, we thought of showing first the evolution of this technology and its impact on the employees in the organizations.

II. EVOLUTION

For a long time when it first emerged, the intranet was viewed solely as a tool for managing one sided communication with the employees or supplying them with certain services (Martini et al., 2009). However, beginning in 2004, a new vision of Intranet emerges: a tool that is oriented and concentrated on employees and their needs, with the strategic goal of creating a comprehensive workspace to support their day-to-day operations, knowledge management, collaboration, and communication activities (Corso, Giacobbe, & Martini, 2008).

Intranet is no longer used only to boost corporate communication, propagate business culture, or remove paper documents. The goals concern operations and, in many cases, the establishment of a profiled and customized environment that engages users in business life, therefore establishing and beginning a new system of relationships. This is also accomplished through the integration of new communication tools and other business information systems into the Intranet, resulting in a working environment that provides employees with complete operational support.

Intranets that are more developed are expanding their capabilities to become more integrated with management systems.

They tend to allow the input of other parties like customers, suppliers and partners in the same way as businesses as a whole do.

In more advanced Intranets, we do not have a separation from other web-based applications like the CRM.

Finally, and perhaps most critically, more developed intranets tend to connect with managerial information systems and legacy systems to an ever-greater level. In some circumstances, the latter are given a web interface and gradually incorporated into the Intranet platform. In other words, Intranets are expanded to accommodate legacy and ERP system capabilities.

A new generation of Information Systems has emerged and is fully integrated with communication systems which are part of the virtual work environments and are able to drive sustainability to the firm's different processes. (Bottazzo, 2005) stated that

intranet portals allow integration with different business applications like the ERP and CRM applications used in a company which permits access to more information and diverse data. The intranet then allows the user to reach the information needed to complete daily tasks and make decisions from different sources in one portal.

Different research (Corso et al., 2008; Corso et al., 2009) prove that intranet evolved from being a technological view in the 90’s to a unidirectional communication and information channel and then to an integrated work space where employees can find all they need to work, manage knowledge and socialize. This is known as the virtual workplace.

Happeo, an intranet provider which has customers like Decathlon, Doctolib, Pinterest, focuses on connecting teams and people in an organic way through the efficient implementation of intranets, presented a brief history and evolution of intranet in the picture below.

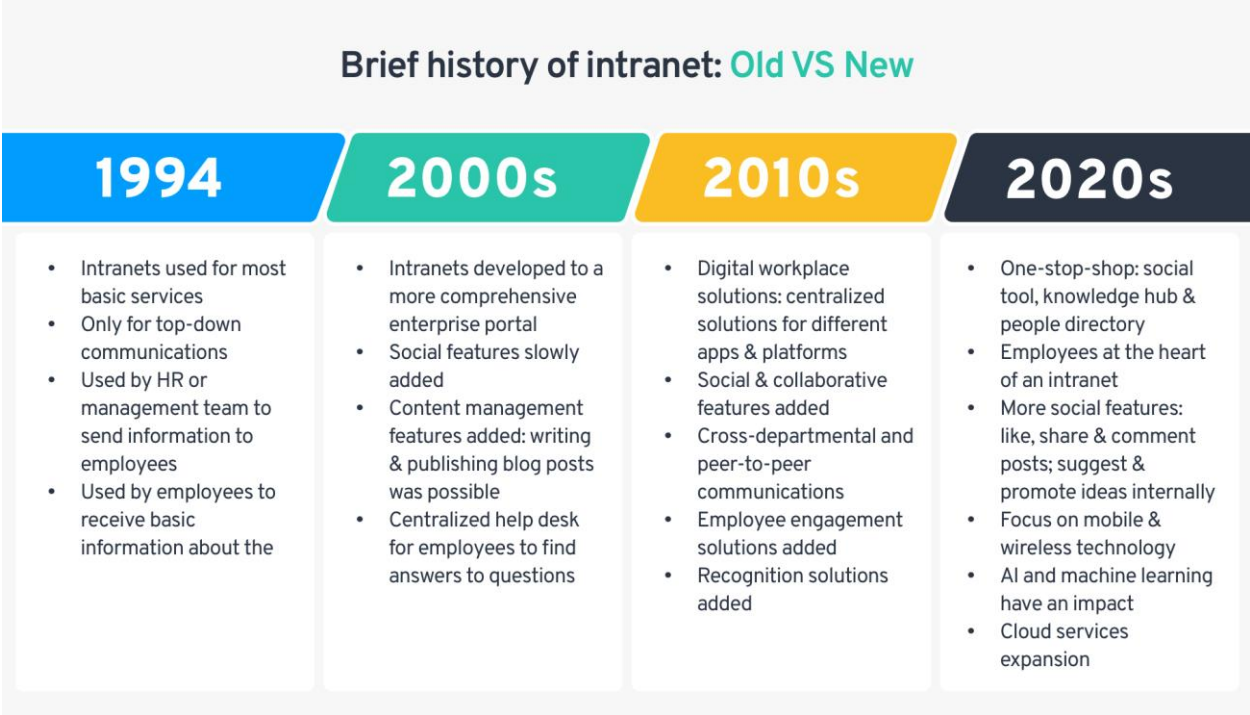


Figure 1: Brief history of intranet [1]

III. IMPORTANCE AND ADOPTION

After discussing the definition and history of the intranet, we discuss in this part the importance and adoption of this technology: Why do companies implement intranet and why are they still relevant nowadays?

The proper use of technology in companies is critical to the overall functioning of the business (Lee & Kim, 2009). Companies have been using several information system applications to enhance productivity, help with daily tasks and improve the business efficiency. As one of these IS applications, intranet has been used as an engagement tool for geographically scattered staff (Lee & Kim, 2009), a communication channel, a knowledge sharing platform and enables information related activities like acquisition, organization, storage, retention, distribution and presentation (Lee & Kim, 2009) while enhancing data access, saving costs and improving decision making (Lai, 2001). It is seen as relevant and important when providing the same information or news to a bigger number of employees in different corporate sites at the same time despite distance and time differences (Lehmuskallio, 2006).

The significant advantages of intranet solutions are attracting businesses from all sectors to implement intranets. We can cite the following benefits: cost and time savings, increased productivity, flexibility (Schneider, 1997) reliability, decreased effort, timeliness, and eradication of departmental barriers. A successful intranet application indicates a greater return on investment, reduced risk, a faster payback period, more business prospects, cheaper training costs, and a shorter development life-cycle (Campbell, 1998).

The adoption of intranet is growing continuously (Schulze, 2018) and increasing drastically due to its numerous benefits (Lehmuskallio, 2006). Researching a few numbers, a study conducted in 1996 in Hong Kong showed that despite the early stages of intranet, 41% of organizations already had intranets implemented (Lai, 2001), then 60% of the US companies in 1998 (Sridhar, 1998; Wachter & Gupta, 1997) and then

93% of the respondents in Finland of the survey conducted by (Lehmuskallio, 2006) in 2006.

To know the percentage of adoption of intranets in companies nowadays, Simpplr conducted a research in 2020. Simpplr is an intranet software provider based in the US implementing intranet platforms for companies (a few of their clients are Talend, Coursera, Fox, DocuSign, etc.) to enhance engagement and manage employees. The survey conducted by Simpplr was distributed to hundreds of employees mostly in internal communications, IT and HR departments evenly across small and large companies. Of the 183 respondents, 85% say that their company has an intranet portal while 15% say it doesn't, see chart below.

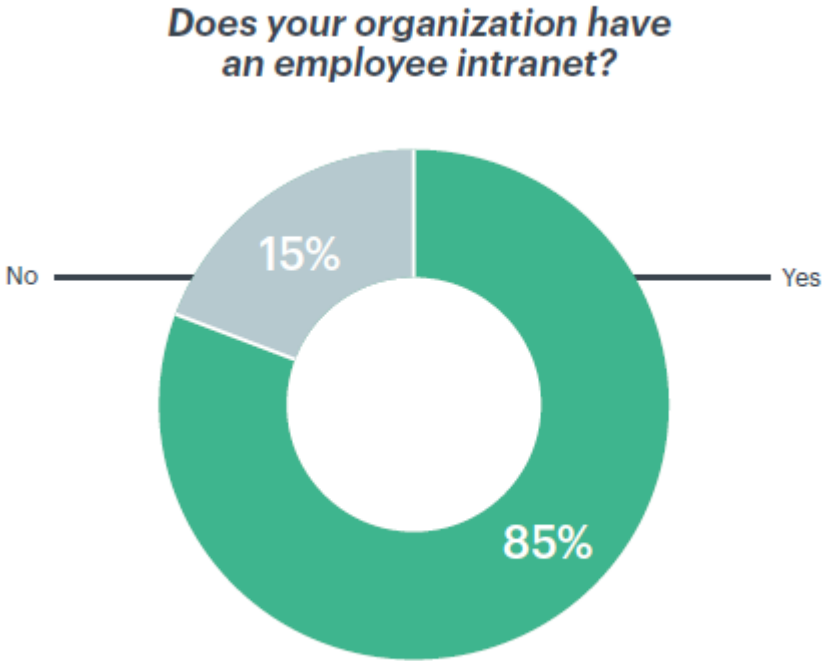


Figure 2: Results showing intranet adoption in companies [2]

The numbers in the survey show that most companies have intranet portals implemented in their technology. This highlights the awareness of companies of the importance of these portals. The main targets companies try to reach with the use of intranets include communication and knowledge management. In the coming sections,

we will talk about the contribution of the intranet in making these latter possible and easily managed.

IV. COMMUNICATION AND INTRANET

As we already mentioned, one of the main targets management tries to accomplish through intranets is organizational communication (Bottazzo, 2005). Many companies consider the intranet as the most significant enabler of internal communication while outperforming more usual channels of communication like face-to-face interactions and emails (Lehmuskallio, 2006). Intranets propose several services in order to reach this target. These services are highlighted in (Kienan, 2000) and include the following:

- Possibility to create meetings through a shared calendar where employees can check the availability of other participants for online reunions
- Shared social space where employees can be expressive of their ideas and share their thoughts on different topics
- Phone tools where employees can check work related contact details and can be updated easily and frequently
- Surveys which is how the surveyor communicates easily using intranets with respondents to get answers on specific topics
- To-Do lists where employees, their managers or colleagues can create tasks facilitating group work, communication between individuals and effective follow ups

V. KNOWLEDGE MANAGEMENT AND INTRANET

As the relevance of knowledge management grows, so does the function of intranet in knowledge management (Skok & Kalmanovitch, 2005). Learning and knowledge management in companies are now the key aspects of a successful modern organization because organizational learning does not target individuals but the whole organization (Bottazzo, 2005). Intranets are used by the organizations to enhance the

efficiency of trainings and knowledge sharing while keeping the smallest financial costs and time spent (Bottazzo, 2005).

Same as communication, (Kienan, 2000) highlighted the importance of intranet in knowledge management also by showing the services it provides:

- Easy and shared access or limited access depending on the employee's position to organizational documents with the availability of a search engine which facilitates the digging
- FAQ pages where users add answers to common questions which facilitates knowledge sharing, saves time and effort on recurring inquiries
- Trainings which are shared on the intranet to allow a faster learning process to a larger number of employees while reducing any costs that might occur if conducting physical trainings instead. Another important aspect of trainings on intranet portal is the accessibility which allows the participant to check the training anywhere, anytime and as many times as they want

E-Trainings allow participants in general and new joiners in particular to learn the company's goals and visions, code of conduct, how to use the company's platforms and systems which would be relevant to their position like for example how to use the IT ticketing system or how to extract dashboards from the BI tool acquired by the company, along with other trainings that might be beneficial like time management, handle stressful situations, productivity, etc.

With the outburst of virtual environments, the concept of social presence was introduced and referred to the "sense of being with another" (Biocca et al., 2003). Social presence helped create awareness of the presence of human beings in virtual environments and proved its efficiency in e-com and e-learning while heavily affecting trust and loyalty in computer mediated communications. To better understand social presence, a research of previous literature is conducted below. First, we start with the social presence theory then its effect in several industries to highlight its importance in raising awareness of the presence of others in computer mediated communications.

CHAPTER 2 – SOCIAL PRESENCE

VI. THEORY

Originally having roots in the social psychological theories of interpersonal communication and non-mediated interactions, social presence is now broadly discussed in the milieu of mediated communication and evolving through efficiency and satisfaction studies in the telecommunications media. Social presence was first defined by (Short et al., 1976) as the salience of the interactants and their interpersonal relationship during a mediated conversation. In other terms it is the creation of human moments in virtual environments.

(Oh et al., 2018) defined it as the feelings of being with a “real” person during online exchange. These feelings can be emerged with the use of emojis, voice messages, video calls and any other mean of interaction with others. These latter create a sense of “being with another” and “being together” as (Biocca et al., 2003) stated. Social presence has been also defined as the level of which technology allows users to feel psychologically present (Fulk et al., 1987). In this notion, the feeling of warmth implies the feelings of human contact, sensitivity and sociability (Hassanein & Head, 2007).

In Human Computer Interaction, this feeling of belonging and being with another person is influenced by user interfaces. This “another person” is mediated using technology and represented as texts, images, avatars and virtual components. Newer definitions shifted the focus of social presence to whether there is a connection which is considered interpersonal and emotional between two participants as per (Lowenthal, 2010). A recap of major definitions by different authors is available in the below image:

Authors	Definition
Abdullah (2004)	"a sense that online users have of the communicators being 'real' interlocutors with personalities and physical presence [...]. In other words, an interlocutor's [social presence] is like the impression one would have of him or her if that interlocutor were physically present in the communication" (p. 3)
Arbaugh et al. (2008)	"the ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities" (p.134)
Belderrain (2006)	"the degree to which individuals perceive intimacy, immediacy, and their particular role in a relationship" (p. 149)
Biocca et al. (2001a)	"the moment-by-moment awareness of the co-presence of another sentient being accompanied by a sense of engagement with the other (i.e., human, animate, or artificial being)"
Garrison (2009)	"the ability of participants to identify with the community (e.g., course or study), communicate purposefully in a trusting environment, and develop interpersonal relationships by way of projecting their individual personalities" (p. 352)
Garrison et al. (2000)	"the ability of participants in a community of inquiry to project themselves socially and emotionally, as 'real' people (i.e., their full personality), through the medium of communication being used" (p. 94)
Gunawardena (1995)	"the degree to which a person is perceived as a 'real person' in mediated communication" (p. 151).
Gunawardena and Zittle (1997)	"[t]he ability to project one's identity" (p. 163).
Gunawardena and Zittle (1997)	"the degree to which a person is perceived as 'real' in mediated communication" (p. 8)
Hassanein and Head (2007)	"where the medium gives the user a sense of human warmth and sociability" (p. 690)
Jung et al. (2002)	"interaction between learners and instructors that occurs when instructors adopt strategies to promote interpersonal encouragement and social integration" (p. 153)
Kang et al. (2007)	"perceived depth of relationships with other learners and the community during e-learning." (p. 2)
Kim (2011)	"the specific awareness of relations among the members in a mediated communication environment and the degree of proximity and affiliation formed through it" (p. 766)
Kozan and Richardson (2014)	"the degree to which participants feel affectively connected to one another" (p. 69)
Moreno and Mayer (2004)	"[a] feeling of being with and interacting with another social being" (p. 166)
Picciano (2002)	"a student's sense of being in and belonging in a course and the ability to interact with other students and an instructor" (p. 22)
Ogara et al. (2014)	"the degree along some definable continuum of unsociable—sociable, insensitive—sensitive, cold—warm, and impersonal—personal" (p. 455).
Remesal and Colomina (2013)	"the result of constructive and evolutionary discursive group interaction which promotes the creation of a community feeling, the maintenance of positive relational dynamics, and the enhancement of self- and collective efficacy in front of the learning task, in such a way that the learning process is supported" (p. 258)
Russo (2000)	the degree to which a person is perceived to be 'real' in a technology mediated environment
Short et al. (1976)	"degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationship" (p. 65)
Sung and Mayer (2012)	"the subjective feeling of being connected and together with others during computer mediated communication" (p. 1739)
Swan and Shih (2005)	"the degree to which participants in computer-mediated communication feel affectively connected one to another" (p. 115)
Whiteside (2017)	"a critical literacy for cultivating emotions and relationships, which 'serves an influential role in advancing and sustaining successful, meaningful learning experiences'" (p.133)
Sallnäs (2005)	"the feeling that one is present with another person in a mediated environment." (p. 438)

Shin (2013)	“a feeling of being in the company of someone and the perceptual illusion of nonmediation” (p. 941)
Tu (2002a)	“Social presence is the degree of person-to-person awareness, which occurs in the computer environment” (p. 34).
Tu and McIsaac (2002)	“[t]he degree of feeling, perception and reaction of being connected to other intellectual entities in online classrooms” (p.146)
Walther (1992)	“the degree to which users can feel others’ presence in the result of interpersonal interactions during the communication process” (p. 54).
Yen and Tu (2008)	“the degree of feeling, perception, and reaction of being connected by computer-mediated communication (CMC) to another intellectual entity through electronic media” (p.297)

Figure 3: Definitions of Social presence, Taken from (Kreijns et al., 2022)

Different authors defined two main concepts of social presence: Intimacy and immediacy.

(Weiner & Mehrabian, 1968) pointed at immediacy as communication behaviors that magnify connectedness to nonverbal cues. In other terms, immediacy can be defined as the psychological distance between participants. Nonverbal cues such as eye contact, facial expression and gestures lead to more immediate interactions. (Argyle & Dean, 1965) posited that intimacy is a combination of eye contact, smiling, physical proximity and topics’ intimacy. The equilibrium of these components form the intimacy. In other words, intimacy can be referred to by the connection people feel during an interaction. (Short et al., 1976) stated that the level of intimacy is affected by physical distance, eye contact and smiling as for immediacy, it can be reached using verbal and nonverbal cues. Based on their findings, they argued that social presence is of high importance in communication as it is fundamental to interpersonal communication. They also stated that social presence is different from a media to another and that latter affects the nature of the interaction and interacts with the purpose of the interaction (Cui et al., 2013). (Gunawardena, 1995) sees that social presence can be achieved with the participants, not only the medium, refusing Short et al.’s claim. She conducted studies on student’s reactions to CMC. Based on her findings and although CMC is seen to be low in social presence as a technological medium, it can still be seen as active, interactive and interesting by the students who considered CMC as a sociable medium. (Gunawardena & Zittle, 1997) also proved that social presence can be achieved during online conferences with the help of the

medium and the participants' interactions as their perception of human qualities depend on the social presence created by the group online.

Social presence has been considered important especially in virtual environments. Researchers studied social presence in virtual places such as media, technology, online learning, e-com retail, etc.

We talked about the theory of social presence in the previous section. To understand better its implementation and its outcomes, we highlight the usage the social presence in two different industries in following sections.

VII. SOCIAL PRESENCE IN E-LEARNING

Social presence is of high importance in the academic industry. Its main goal is to create a level of comfort in which people feel at ease around the instructor and other participants (Aragon, 2003). Studies have shown that the lack of social presence in the academic environment affects negatively the amount of information shared with others. Social presence can be manifested in many ways. (Yoon, 2003) specified them in his research, where he tried to find meaningful online learning experiences, as discussions of the course, group works, humorous conversations. He assumed that the relationship between team mates will change from informal to formal with time with the increase of the online social interaction they will have which will increase as well the social presence.

Gunawardena and Zittle highlighted in their 1997 study the high influence of social presence on the levels of satisfaction in online conferences and in another recent study, she proved the social presence enhances trust building within online learning environments.

As a recap, the benefits of social presence in this industry can be recognized by the levels of student satisfaction and learning outcomes. (Aragon, 2003) suggested strategies to follow that will help create and maintain social presence within e-learning environments. He claimed that instructors are not the only ones who should be

responsible for this. Participants and course designers have a role too in creating and maintaining social presence.

Developing welcome messages, including student profiles, including audio, limiting class size and creating collaborative educational activities are the main focus points in course design that will improve social presence. Each of these points has its purpose. For example, welcome messages allow the students to know the instructor. As for audio, it reflects the emotions emitted in the voice of the instructor and participants and the friendliness atmosphere which helps create social presence and encourages participation. Collaborative learning activities can increase participants' interaction which leads to social presence. These activities include group work, brainstorming, discussions, projects and debates. This strategy also helps participants to share knowledge and benefit from shared experiences.

Instructors play an important role as well in the creation of social presence in such environments as they contribute to discussion boards, answer emails in a timely manner, provide feedback, start a conversation, share personal experiences, address students by their name, allow students to address them, etc. In order to establish a social connection with all class members, instructors should emphasize on participation and interaction in the online class. Adding to that, when someone asks a question in face to face conversations, an answer follows. This is harder in online environments as technology puts distance between parties. In e-learning, this is translated in emails sent between the instructors and participants. These latter need to feel that their messages are considered as important which shows the importance of timely responses in the creation of social presence. Other than prompt responses to emails, participants require constant feedback on their assignments, projects and progress in the course. As much as a group feedback is important and needed in a certain class, individual feedback is as important as it shows the students that their work is valued and establishes social presence. Not to mention the importance of starting a conversation with the participants as a part of creating social presence in such environments. (Aragon, 2003) takes time to create conversations with the

students prior starting the course, talking about various topics and sharing personal stories and experiences, so that he and the participants get to know each other better.

Participants share the same responsibilities with instructors in order to help establish social presence. They should contribute in discussions, participate in classes as it helps students get to know each other and helps the instructors know the students better, promptly answer their emails because it is as important for instructors to get swift replies too, start conversations because students should not just sit quietly until the instructor starts the course, students should feel at ease and be able to communicate with others same way they do face to face and share experiences which will contribute to the participation in class.

VIII. SOCIAL PRESENCE IN SOCIAL COMMERCE

Social commerce by definition is the delivery of e-commerce activities and transactions using social media (Liang & Turban, 2011), considered part of e-commerce (Stephen and Toubia, 2010) and has three major attributes: social technologies, community interactions and commercial activities. (Yadav et al., 2013) considered social commerce as a subset of e-commerce that uses social technologies to assist e-commerce activities. Social technologies made online shopping a more sociable experience and gave firms the possibility to initiate and manage social interactions with the users which were in the past either costly or impossible (Chen et al., 2011).

So in other terms, social commerce is more focused on social goals such as collaborations, networking and information sharing while shopping comes as a secondary goal (Wang & Zhang, 2012). In social commerce, buyers can base their purchasing decisions on different information which can be easily collected by observing other buyers or interacting online with the sellers (Lu et al., 2016). Thus, social commerce combines the information of social networking services and the technology of e-commerce while enhancing shoppers' experience (Lal, 2017).

In previous e-commerce research, social presence was shown as the ability to provide a sense of warmth and sociability. But this unidimensional concept of social

presence is not really suitable for virtual communities as people do not only interact with the computer, they search for communication with other members and to feel some sense of belonging in this community. On the other hand, social presence was conceptualized as a multidimensional concept for the purpose of determining customers' experience in virtual environments from different aspects. For that reason (Shen and Khalifa, 2009) proposed a model consisting of three dimensions of social presence: awareness, affective social presence and cognitive social presence because social commerce is perceived as the combination of social and commercial activities (Liang & Turban, 2011). (Lu et al., 2016) proposed another three dimension model of social presence: social presence of the web, perception of others and social presence of interaction with sellers based on the model suggested by (Caspi and Blau, 2008): perception of the others (aka medium's impersonality), self-projection and social identification. Another three dimensions were identified by (Tu, 2002) also identified a multidimensional model consisting of social context, interactivity and online communication.

Lu et al. (2016) based their conceptualization of social presence on three aspects: awareness, perception of others, and engagement with sellers on Caspi and Blau's (2008) study. Similarly, Shen et al. (2010) established three characteristics of social presence: awareness, cognitive social presence, and affective social presence. Chang and Hsu (2016) used Shen and Khalifa's (2008) three-dimensional scale to assess social presence. To quantify social presence within a corporate SNS, Han et al. (2016) used Gefen and Straub's (2003) unidimensional scale.

Previous studies (for example, Gao et al. 2017; Lim et al. 2015; Obeidat et al. 2020) used a unidimensional scale based on Khalifa and Shen's (2004) and Steuer's (1992) scales to evaluate social presence on an SNS. Han et al. (2016) explored social presence in an SNS and conceptualized it as a unidimensional entity based on the Karahanna and Straub (1999) scale. Thus, the importance of social presence can be shown in a variety of studies in the field of SNSs due to its potential to improve social interaction and

communication between users of a specific SNS or users and enterprises (Cui et al. 2013; Tu 2002; Xiao et al. 2019a; Yu and Vahidov 2019).

All of these information were summarized by (Algharabat & Rana, 2021) in the table below:

Social presence	Shen and Khalifa (2008)	Three dimensions: social context, interactivity and on line communication	Online communities of general interest in Hong Kong
	Caspi and Blau (2008)	Three dimensions: A medium's impersonality, self-projection, and social identification	Online learning communities
	Tu (2002)	Three dimensions: social context, interactivity and online communication	Online learning environment
	Shen et al. (2010)	Three dimensions: awareness, cognitive social presence and affective social presence	Virtual Communities
	Lu et al. (2016)	Two dimensions: social presence of web, and social presence of interacting with sellers	Taobao Virtual Community in China
	Chang and Hsu (2016)	Three-dimensions: awareness, affective and cognitive	Facebook in Taiwan
	Han et al. (2016)	Unidimensional scale	Corporate SNS
	Obeidat et al. (2020)	Unidimensional scale	SNS
	Han et al. (2016)	Social presence as a unidimensional	SNS
	Gao et al. (2017)	Unidimensional	SNS
Lim et al. (2015)	Unidimensional	Social TV	

Figure 4: Research construct, dimensions and context of social presence, Taken from (Algharabat & Rana, 2021)

As previously mentioned, social presence in websites means the ability of that latter to provide a sense of human warmth and sociability (Hassanein et al., 2009). Many points contribute to establishing social presence in websites. For example, websites containing multimedia and socially rich text can show a sense of personal and sensitive human contact (Lu et al., 2016). Also other IT components usually added to the websites like chat bots, 3D avatars and videos help enhance social presence. Consumer reviews and ratings increase the social presence of the websites as well.

In social commerce, social presence can be presented in the perception of others. What is meant here is the level of awareness people have towards other people in the same online community. This can be increased with the use of social applications like social proof, which is a type of social application to solve customers' uncertainty regarding what to buy (Lu et al., 2016), will give customers an idea of the purchasing intentions of other buyers. Reviews also increase the perception of other buyers online as they give insights on previous purchases and opinions and becomes an important information which increases the levels of buyers' awareness (Chen et al., 2011). The interaction with sellers also plays an important role in establishing social presence

as chat tools have been used to enhance communication and customer service. Previous studies have shown that social presence in websites can be reached using image interactions and web interfaces (Hassanein & Head, 2007), the computer mediated communication tools like chatting with customer support and message boards also achieve social presence.

IX. EFFECT OF SOCIAL PRESENCE ON TRUST

We mentioned earlier that many researchers studied the social presence and its effects on consumer's behaviors and attitudes towards the technology. In this and the following sections, we will highlight the effect of the usage of social presence on consumers' trust and loyalty towards the technology used. This is relevant for us to be able to emphasize the strong association between social presence and users' attitudes.

Trust is very important in many economic transactions (Fukuyama, 1995; Mayer, Davis, & Schoorman, 1995). When a social world cannot be governed by laws and norms, individuals prefer to rely on trust as a social complexity reducer (Luhmann, 1979). The same applies for online transactions due to the lack of effective oversight over e-vendors' opportunistic conduct. Thus, trust is frequently seen as the basis of e-commerce (Keen, Ballance, Chan, & Schrupp, 1999) and the most important aspect in e-commerce success (Wang & Emurian, 2005). Prior e-commerce research has concentrated on identifying important antecedents of trust or revealing the mechanism of trust formation (e.g., Lu, Hirschheim, & Schwarz, 2015; Ou & Sia, 2009).

The concept of community member trust is regarded as one of the primary instruments on which community members rely to obtain certain benefits such as lowering transaction costs, boosting members' capacity to trade online, and lowering risks (Aljifri et al. 2003; Grazioli and Jarvenpaa 2000; Mutz 2005). Söllner et al. (2016) define trust in community members as a member's readiness to rely on the actions and evaluations of other members in order to make judgments about their issues on specific Social Networking Service (SNS) platforms. According to Pan et al. (2007),

community members can benefit of the existence of other members by exchanging knowledge, which helps them make decisions.

Furthermore, community member trust is founded on a common relationship between specific members of the community. As a result, trust in SNSs community members is frequently dependent on trusting others and feeling trusted mutually (Zucker 1986). It is believed that the relationship between social commerce concepts, like recommendations and referrals, ratings and reviews, forums and communities, and community trust is very important as a consequence of the interaction that occurs through social commerce members and their evaluation of various attributes of a particular SNSs community. In other words, it is believed that user engagement on social media will contribute to community members trusting each other on the same SNS. As a result, trust will be passed along all community members. Based on (Algharabat & Rana, 2021) study, social trust dimensions and contexts can be found in the figure below:

social trust	Aljifri et al. (2003)	Unidimensional	E-Commerce
	Mutz (2005)	Unidimensional	Websites
	Ziegler and Lausen (2005)	Formula	Social networks
	Golbeck (2005)	Formula	Social networks
	Agarwal and Bharadwaj (2011)	Formula	Web-based social networks
	Sherchan et al. (2013)	Multidimensional: calculative, relational, emotional, cognitive, institutional/ system, and dispositional	Social networks
	Söllner et al. (2016)	Unidimensional	Experimental (Meet U)
	Alalwan et al. (2019)	Unidimensional	Online community

Figure 5: Research construct, dimensions and context of social trust, Taken from (Algharabat & Rana, 2021)

Members of a certain social media platform's community can be effectively convinced by other members even if they do not know each other (Cialdini 2001). Godes et al. (2005) contend that social contact has a significant impact on customers' attitudes, beliefs, and purchasing behavior. For example, Cialdini (2001) claims that while purchasing online, buyers rely on the views of their peers. According to Chen et al. (2011), customers' attitudes and behaviors are shaped by their observations of other members' purchasing actions. Sharma et al. (2019) hypothesized a link between trust and social presence. Lu et al. (2016) discovered a substantial link between social presence and trust in the setting of a social commerce platform. According to Lu et al.

(2016), consumers' capacity to connect with other members of the same SNS community helps them to obtain a higher number of information from members in the community, and so this type of contact increases community members' trust. Furthermore, the authors suggest that contact between diverse members of the community reflects a form of social presence.

X. EFFECT OF SOCIAL PRESENCE ON E- LOYALTY

Zeithaml et al. (1996) define consumer loyalty as the intention to remain with a business. In conventional contexts, this may be accomplished through the physical environment or the demeanor of sales professionals. According to Luarn and Lin (2003), "understanding how or why a sense of loyalty emerges in consumers remains one of the critical managerial concerns of our day" in online contexts (p. 156). Delivering value-added services, such as information design or navigation skills that are simply accessible, allows online suppliers to create long-term connections with clients (de Ruyter et al., 2001). If online buyers appreciate the look and functionality of a website, they are more likely to return (Rosen and Purinton, 2004). But this does not mean that customers have developed e-loyalty to this website as Wind et al. (2002) believe that e-loyalty is difficult to assess because many buyers will check the information online but purchase offline. According to prior study, online loyalty, also known as e-Loyalty, is defined as a "consumer's intention to buy" from a website, and that customers would not switch to another website (Flavián et al., 2005). Although (Cyr et al., 2007) stated in their research that they are not aware of any particular studies in which social presence has been examined in connection to e-Loyalty directly but Simon (2001) and to Hassanein and Head (2006) suggest that information-rich websites that project social presence are more likely to stimulate customers purchases on a website than those that do not and social presence has a link with purchase intention and attitude toward a website respectively which allow us to expect a relationship between social presence and e-Loyalty. This hypothesis was proven by (Cyr et al., 2007) in their research as they studied the link between social presence and e-loyalty towards an e-services website.

PARTIE 2

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RESEARCH PROBLEM

CHAPTER 3 – RESEARCH PROBLEM AND RESEARCH QUESTIONS

We have discussed in the previous sections the importance of intranets, why do firms implement them and their effect on individuals and businesses. Intranet success in the business lays within the reach of critical success factors while implementing these portals like the specification of clear goals and objectives, the analysis of the requirements, the monitoring and control, the user acceptance testing along with the training and education on the portal, etc. (Remus, 2007).

Although intranets provide a great environment for information and many success stories have been shared showing the importance of the use of intranets (Leung, 2001), companies complain that their intranet portal is underused by their employees (Stenmark, 2006).

We have different reasons behind this issue which actively lead to intranet failures. (Goodman & Lehmuskallio, 2008) stated that intranets fail when being unable to reach user's needs. (Curry & Stancich, 2000) reported that it is seen to be quite impersonal and inactive. (Dongen, 2020) confirmed this later on after his qualitative research on a company trying to measure employees' needs within internal communication such as trust and respect. The intranet can sometimes be boring (Colby, 2003), users can feel isolated and not involved, it can also present lack of collaboration and trust between members (Cascio, 2000). (Sisko Maarit Lipiäinen et al., 2014) also claimed in their research that employees look for better interactivity on the portal. These isolation, not being involved, lack of collaboration and lack of personal intimacy feelings experienced by employees drive them to not use intranet although the known importance of the platform to them and the overall company. As an important mean for knowledge management in the company, virtual learning presents the same disadvantages such as lack of interaction, engagement, connectedness along with feelings of isolation. These challenges were heightened during the Covid-19 period, when employees had to work remotely with no means of social interactions. (Wang et al., 2021) reported that employees felt lonely due to the lack of social interactions while remote working.

These problems, faced by the users, were summarized in the table below.

Title	Author	Problems
The advantages and disadvantages of virtual learning	(Dung, 2020)	- Lack of interaction with peers and instructors
A Case Study of UiTM Post-Graduate Students' Perceptions on Online Learning: Benefits & Challenges	(Tareen & Haand, 2020)	- Lack of group interaction
The effectiveness of online learning in Tax training	(Said, 2021)	- Lack of interaction
Student experience of perceived connectedness in online design education	(Gogu & Kumar, 2021)	<ul style="list-style-type: none"> - Lack of felt connectedness - Lack of interaction - Physical/Visual absence
Proactive strategy to improve staff engagement	(George & Massey, 2020)	- Lack of engagement
Understanding the challenge of remote working and its impact to workers	(Flores, 2019)	<ul style="list-style-type: none"> - Feelings of isolation - Lack of interaction
The intranet — an intrinsic component of	(Curry & Stancich, 2000)	- Intranet is impersonal and inactive

strategic information management?		
Employees needs in the internal communication with their managers to gain trust and respect	(Dongen, 2020)	- Intranet is not direct and personal
When the Intranet Gets Too Big	(Colby, 2003)	- Intranet is boring - Feelings of isolation - Lack of involvement - Lack of trust
Managing a virtual workplace	(Cascio, 2000)	- Lack of collaboration - Lack of trust
Digital channels in the internal communication of a multinational corporation	(Sisko Maarit Lipiäinen et al., 2014)	- Lack of interaction
Employees' perceptions of relational communication in full-time remote work in the public sector	(Jämsen et al., 2022)	- Feelings of loneliness - Feelings of isolation

Table 1: Summary of issues faced in intranet

Social presence was studied in e-commerce, social commerce, online learning, social networking services and research highlighted its positive impact on loyalty and trust as we discussed previously and it was proven to change people's perception, attitude and behavior towards technologies. However, no previous research showed the impact of implementing social presence in intranets in general and the intentions to use them in particular.

We aim in this research to answer the following:

Will the implementation of social presence allow the elimination of feelings of loneliness and isolation, and raise the levels of connectedness and awareness of other people on intranets?

What is the effect of social presence on the intention of use of intranets ?

PARTIE 3

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RESEARCH METHODOLOGY

CHAPTER 4 – RESEARCH MODEL AND HYPOTHESIS

XI. RESEARCH MODEL

The present research examines the users' intentions to use the intranet portal and how it is affected by the levels of social presence perceived by these users.

“The effectiveness of IS depends on its acceptance by users” (Lee & Kim, 2009). For that reason, many researchers used the Technology Acceptance Model (TAM); created by Davis, Bagozzi & Warshaw in 1989; as a useful way in predicting the users' acceptance of technologies. This model has been widely used in the context of web environment to inspect users' acceptance of such technologies.

According to TAM, the acceptance and usage of technologies can be determined by two beliefs which are the perceived usefulness (PU) and perceived ease of use (PEOU) of this new technology (Gefen et al., 2003). Perceived ease of use indicates the efforts put into the learning and utilization of the technology, as for perceived usefulness measures the levels of utility that these technologies offer the users. Davis (1989) defined perceived ease of use as the level to which users believe that they require minimal efforts to use the technology, and perceived usefulness as the level to which they believe that using this technology will be beneficial for their job performance.

In other words, TAM shows that external variables influence indirectly the perceived ease of use and perceived usefulness and predicts IS usage by users as their attitude is affected by their beliefs about technologies. It is widely used to assess the behavior of users and their intentions to use technologies. Various studies have tested TAM in the context of technologies (Horton et al. 2001; Pavlou, 2003) to show that the perceived ease of use and usefulness affect the utilization of technologies users (Moon & Kim, 2001).

We propose the below model in order to investigate the impact of integrating levels of socially rich design elements on the perception of social presence within an intranet on the intentions to use. This model hypothesizes a strong relationship between social

presence and intentions to use the intranet and is based on the TAM used by Gefen and Straub (2003) while studying the effect of social presence on customer's intentions to buy in e-com industries.

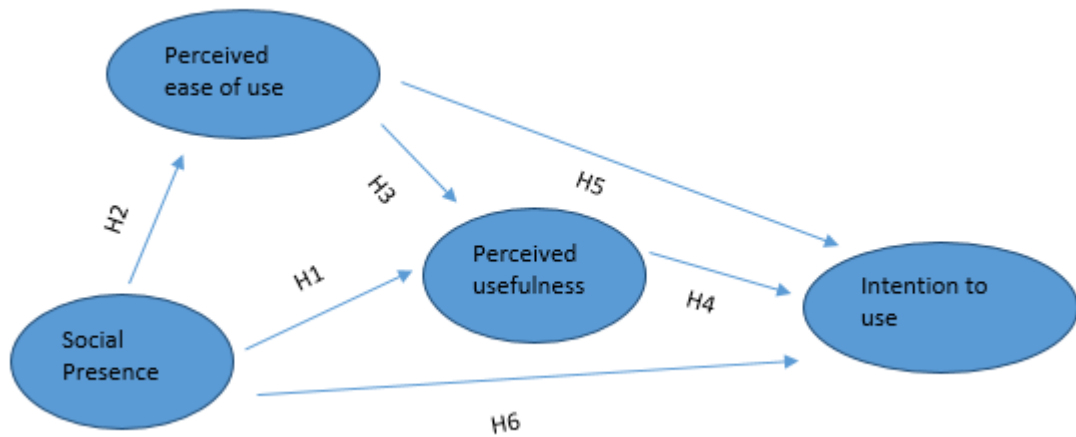


Figure 6: Model proposed

XII. HYPOTHESIS

According to Rice and Case (1983) and Steinfield (1986), there is a connection between acknowledging that a platform is warm and its usefulness. Thus, when a platform that serves as a communication and collaboration tool, in a virtual environment, it is predicted that social presence and perceived usefulness are positively related. The relationship between social presence and perceived usefulness has been also studied in different research naming: Straub (1994), Karahanna and Straub (1999) and Gefen and Straub (1997). For the above confirmations, we suggest the following hypothesis:

H1. There is a positive relationship between social presence and perceived usefulness of intranet.

Different research showed the link between social presence and perceived ease of use. For example, Smith and Sivo (2012) found that social presence had a big and favorable influence on instructor's perceptions of the ease of the use. This was also backed up by Shin (2013) and Iglesias-Pradas et al. (2014). Then, we hypothesize:

H2. There is a positive relationship between social presence and perceived ease of use of intranet.

We previously discussed the usefulness of intranets as these latter allow the consolidation of company-wide documents under one platform, employees to work remotely and utilize information in a manner that improves their performance (Lai, 2001). Adding to that, research has continuously shown that perceived ease of use affects perceived usefulness which affects in its turn the intentions to use websites (Gefen and Straub, 2000). For these reasons, we hypothesize:

H3. There is a positive relationship between perceived ease of use and perceived usefulness of intranet.

H4. There is a positive relationship between perceived usefulness and intention to use of intranet.

H5. There is a positive relationship between perceived ease of use and intention to use of intranet.

Finally, social presence has a role in user attitudes and behaviors, this has been proven in several research and different topics. Gefen & Straub (2003) showed how social presence manipulation in a website may increase purchase intentions and (Choi et al., 2011) proved in their research that social presence will increase the reuse intention of users towards the recommender system. We would like in our research to prove that higher levels of social presence will result in higher intentions to use intranet portals. For that matter, we hypothesize:

H6. There is a positive relationship between social presence and intention to use of intranet.

CHAPTER 5 – DATA COLLECTION

XIII. EXPERIMENTAL INTRANET TEMPLATES

Hassanein and Head (2006, 2007) researched the integration of social presence in the interface of different websites. They manipulated levels of social presence through socially rich texts and images and studied its impact on attitude, trust, enjoyment, etc. We are following the same experimental approach in this research. For that matter, we created an intranet homepage template using Canva, a graphic design platform, for a made-up company (called Beauty Industries) after consulting three different intranets belonging to real companies we have access to and gathering the similar components highlighted in their homepage. Then, we duplicated the template we have created and adjusted it to enclose different social presence aspects which included socially rich texts, socially rich pictures and possibility to like, comment and visibility to last actions made on posts. We did not modify, remove or alter any of the information between both templates. Both templates had the same design, colors, text font and size. Only social presence elements were modified.

The experiment was conducted on-line. The participants had access to only one of the two surveys portraying one of the two templates created and were asked to check the template, performing an experimental task (their company is updating its intranet and asked the employees to surf the new update, assess and get back with their thoughts) and then complete the questionnaire.

This experimental approach has been adopted in different studies as well like Schaffer and Hannafin (1986), Teo et al. (2003) and as previously mentioned Hassanein and Head (2006, 2007).

The table below shows the social presence manipulations of the experimental intranet templates and pictures below show both outcomes.

Intranet template	Social presence level	Available Features
Social Presence 1	Low	Welcome message Access bar

Message from CEO

Company updated

Upcoming events

New joiners

Messages

Social Presence

High

All SP1 Features

2

Socially rich pictures: Pictures of employees in dynamic settings

Socially rich text: Descriptions aiming at creating positive emotions

Use of emojis

Like, Comment features

Table 2: Difference between intranet templates created



Figure 7: Intranet with high social presence manipulation created on Canva

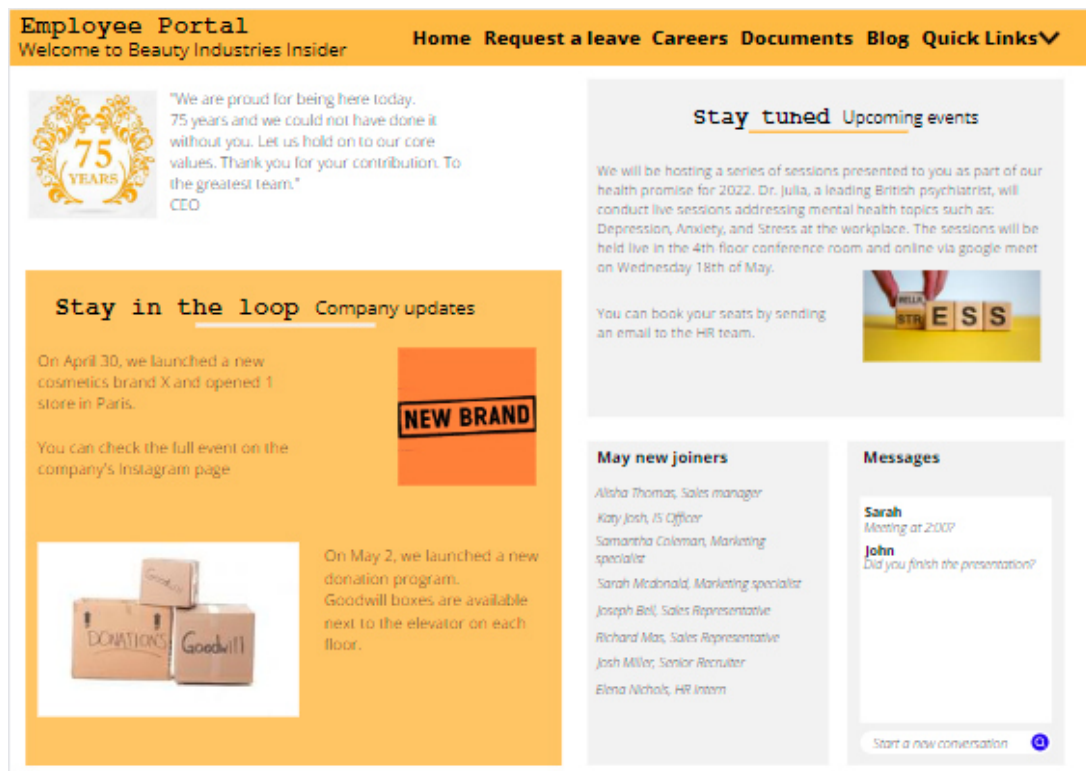


Figure 8: Intranet with low social presence manipulation created on Canva

XIV. SURVEY PREPARATION

Our aim is to check if the manipulations done in the experimental intranet templates raised the levels of social presence perceived by the users and translated by human contact, sociability, human warmth, etc. and if higher levels of social presence will lead to higher intentions to use. The research methodology followed in this study is quantitative. Our survey contained five sections and was structured as follows:

- Section 1: Introductory text and general questions about the respondent such as age, country and profession
- Section 2: General questions about the respondent's usage habits of the intranet
- Section 3: Task introduction and the intranet template we developed
- Section 4: Control questions related to the template in section 3
- Section 5: Questions to be answered regarding the perceived social presence, ease of use, usefulness and intention to use depending on respondent's perception of the intranet template of section 3

A drop down list was used for the questions in the first section which include the age range and gender as for the country and profession, we used a free text field for input. We used also a drop down list for the questions in the second section which include intranet usage related questions to understand employee's behavior towards their company's intranet portal which means how much they visit the intranet and what do they use it for. We implemented the control questions in the fourth section to make sure the respondents took their time checking the intranet template we created and didn't fill the survey randomly. For this section, we added an option respondents can use when they are not sure of the answer. For all of SP, PEOU and PU items, Likert scales were used. Respondents describe their level of agreement or disagreement with a positive remark using this well-established method. A five-point scale with labeled extreme points (1 = strongly disagree, 5 = strongly agree) was employed in this study. A higher number indicates greater agreement and consequently satisfaction.

For the questions in section 5, we adapted the items from Gefen & Straub (2003) to measure social presence (SP), perceived ease of use (PEOU) and perceived usefulness (PU). As for intention to use (ITU), we adapted the 3 questions used from Barnes & Vidgen (2012). The items of this scale are existing, validated and widely used in the literature in several research like Hassanein & Head (2004, 2007 and 2009).

Variable	Item
Social Presence	SP1 There is a sense of human contact in the intranet
	SP2 There is a sense of personalness in the intranet
	SP3 There is a sense of sociability in the intranet
	SP4 There is a sense of human warmth in the intranet
	SP5 There is a sense of human sensitivity in the intranet
Perceived ease of use	Peou1 The intranet is easy to use
	Peou2 It is easy to become skillful at using the intranet

	Peou3 Learning to operate the intranet is easy
	Peou4 The intranet is flexible to interact with
	Peou5 My interaction with the intranet is clear and understandable
	Peou6 It is easy to interact with the intranet
Perceived usefulness	Pu1 The intranet is useful
	Pu2 The intranet improves my performance
	Pu3 The intranet enables me to search faster
	Pu4 The intranet enhances my effectiveness in flight searching and buying
	Pu5 The intranet makes it easier to search for and purchase flights
	Pu6 The intranet increases my productivity in searching and purchasing flights
Intention to use	Itu1 I intend to use the intranet on a regular basis
	Itu2 I predict I will continue to use the intranet on a regular basis
	Itu3 I plan to use the intranet on a regular basis

Table 3: List of items used for survey preparation

The survey was duplicated, having the same questions, but one showing the template of the intranet with the low levels of social presence and the other showing the template of the intranet with the high levels of social presence that we discussed in the previous paragraph. We created a link generator that automatically redirects to one of the two surveys so that the respondents participate in one experiment and their answers do not get affected when seeing both templates.

The data was collected in a 2-week period, during which employees were contacted directly or through a post on LinkedIn.

PARTIE 4

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DATA ANALYSIS AND RESULTS

CHAPITRE 6 – DATA ANALYSIS AND RESULTS

We were able to accumulate a total of 85 responses where 43 respondents filled the survey related to the high social presence intranet and 42 for the low social presence intranet. All of the respondents have answered the control questions we implemented correctly but we removed the responses where the entry time is less than 60 seconds as we believe the respondent answered randomly and did not take enough time throughout the experiment. We ended up with 43 respondents for the high social presence and 41 for the low social presence survey.

For the high social presence survey, 24 respondents were male while 19 were female with 30 of 43 respondents aging between 21 and 30 years old, 11 between 31 and 45 years old and 2 between 46 and 60. We received answers to our survey from different countries around the world including Lebanon, France, Luxembourg, Germany, Spain, etc. We notice also a variety of occupations in different departments including Information Systems and Technology, HR and operations. For the low social presence survey, 23 respondents were male, 17 were female and 1 identified as other with 21 of 41 respondents aging between 21 and 30 years old, 17 between 31 and 45 years old, 2 between 46 and 60 and 1 person less than 20 years old. The countries where respondents reside are similar to the ones in the high social presence survey, including Lebanon, France, Spain, Germany and the United Kingdom. Adding to the different professions we saw in the previous data, medical and legal representatives have answered the survey related to the low social presence. A summary of the respondents' demographics is available in the table below.

		High Social Presence		Low Social Presence	
		Frequenc	Perce	Frequenc	Perce
		y	nt	y	nt
Gender	Female	19	44.2	17	41.5

	Male	24	55.8	23	56.1
	Other			1	2.4
	Total	43	100.0	41	100.0
Age Range	Less than 20			1	2.4
	21-30	30	69.8	21	51.2
	31-45	11	25.6	17	41.5
	46-60	2	4.7	2	4.9
	Total	43	100.0	41	100.0
Country	France	11	25.6	8	19.5
	Germany	2	4.7	3	7.3
	Greece	1	2.3		
	Italy	2	4.7	3	7.3
	Lebanon	15	34.9	16	39.0
	Luxembourg	5	11.6	5	12.2
	Serbia	1	2.3		
	South Korea	1	2.3		
	Spain	2	4.7	5	12.2
	UK	2	4.7	1	2.3
	Venezuela	1	2.3		
	Total	43	100.0	41	100.0
	Profession	Accounting	1	2.3	5
Auditing		1	2.3	1	2.4

Brand management			2	4.9
Business analysis & Dev	5	11.6	8	19.6
Business Intelligence	6	13.9	6	14.6
IS and IT	8	18.6	6	14.6
Engineering	2	4.7		
Human resources	3	7	1	2.4
Legal			2	4.9
Logistics	2	4.7		
Management	1	2.3		
Marketing	1	2.3		
Medical	1	2.3	2	4.9
Project management	8	18.6	6	14.6
Research			1	2.4
Teaching	2	4.7		
Visual merchandising	2	4.7		
Other			1	2.4
Total	43	100.0	41	100.0

Table 4: Respondents' demographics

All of the respondents, in both surveys, stated that their company has an intranet portal but its usage period differed between individuals. The result is translated in the pie chart below. 28 respondents in total are using the portal at least once per day, 27 respondents in total use the portal on a weekly basis while 17 use it once every two weeks and 12 once every month. The below diagrams show the employees' usage pattern of the intranet for each of the two surveys.

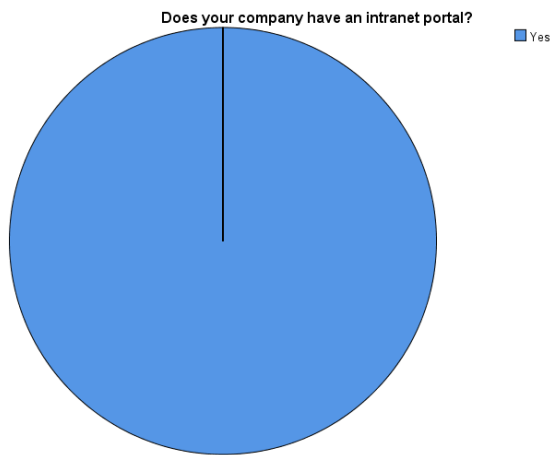


Figure 9: Response to having an intranet portal in both surveys

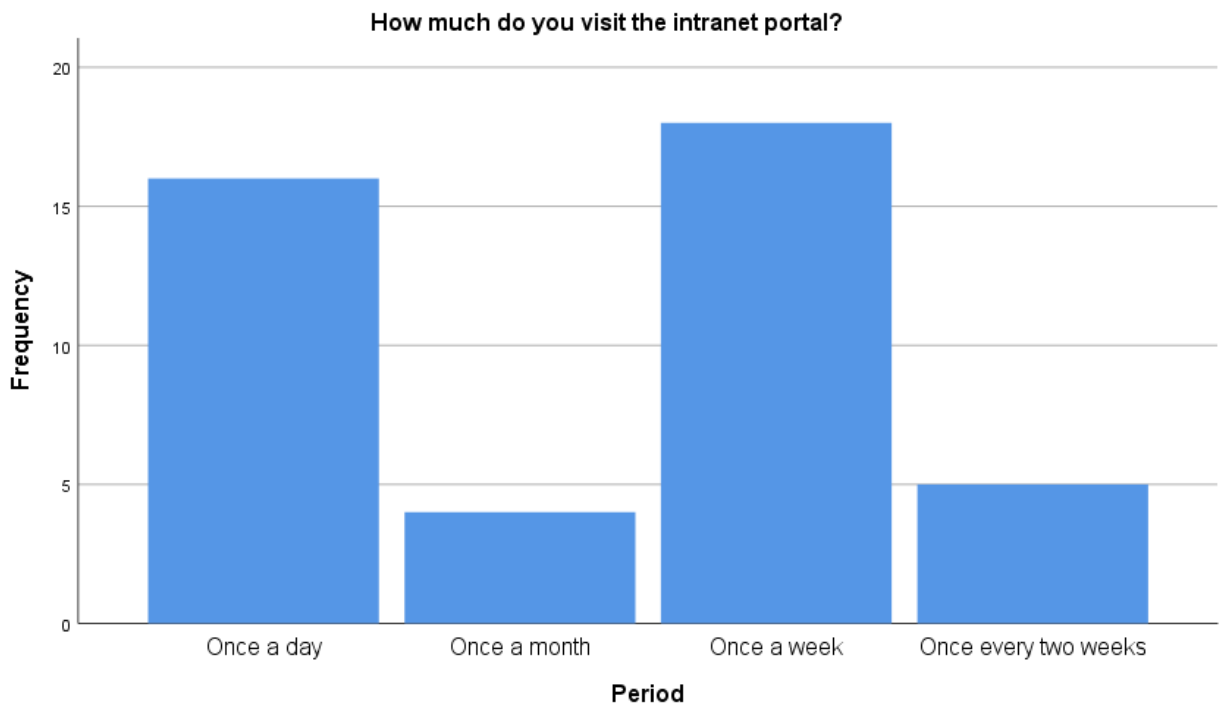


Figure 10: Intranet usage frequency for respondents of the high social presence survey

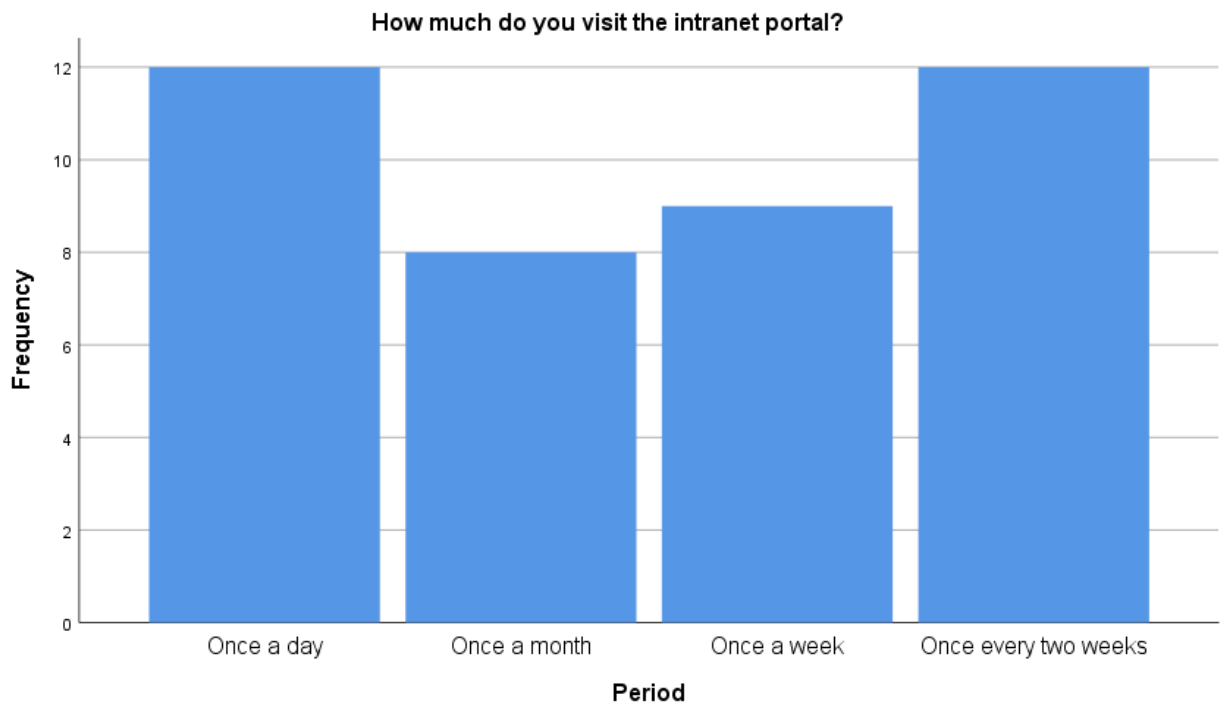


Figure 11: Intranet usage frequency for respondents of the low social presence survey

We used SPSS software for data analysis and conducted the following tests: descriptive statistics, reliability analysis, linear regression and ANOVA.

Before we start the statistical tests, let us take a look at the descriptive table below. The table combines data from both surveys, where intranet templates have been manipulated in our experiment to show low levels or high levels of social presence. Looking at the SP means, we can see that the mean of observed SP in the intranet where low social presence is presented is 1.97 as for the mean of observed SP in the intranet where high social presence is presented is 4.16. This allows us to say that respondents were able to perceive social presence levels, whether low or high that we manipulated in our templates and confirms our theory that these manipulations will affect the perceived social presence. Preliminary looks at the means available in this table shows that having a low mean for SP resulted in a low mean as well for all other variables which include PEOU, PU and ITU compared to a high mean for SP which resulted in a high mean for the variables mentioned. This implies that users who perceived low levels of social presence in the intranet are most likely to not have

intentions to reuse the intranet. On the other hand, respondents who perceived high levels of social presence intend to use the intranet.

	Levels	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower	Upper		
						Bound	Bound		
SP	Low SP	41	1.9756	1.08738	.16982	1.6324	2.3188	1.00	4.00
	High SP	43	4.1628	.87642	.13365	3.8931	4.4325	2.00	5.00
	Total	84	3.0952	1.47247	.16066	2.7757	3.4148	1.00	5.00
PEOU	Low SP	41	2.7398	1.30493	.20380	2.3280	3.1517	1.00	4.83
	High SP	43	4.2558	.73764	.11249	4.0288	4.4828	2.50	5.00
	Total	84	3.5159	1.29504	.14130	3.2348	3.7969	1.00	5.00
PU	Low SP	41	2.7398	1.37793	.21520	2.3049	3.1748	1.00	5.00
	High SP	43	4.2481	.75099	.11452	4.0169	4.4792	2.17	5.00
	Total	84	3.5119	1.33253	.14539	3.2227	3.8011	1.00	5.00
ITU	Low SP	41	2.4390	1.29623	.20244	2.0299	2.8482	1.00	5.00
	High SP	43	4.2248	.94203	.14366	3.9349	4.5147	2.00	5.00
	Total	84	3.3532	1.43708	.15680	3.0413	3.6650	1.00	5.00

Table 5: Mean descriptive statistics

First, we conducted a reliability analysis which allow us to study the properties of measurement scales and their items and shows us the extent to which our scale produces consistent results. Cronbach alpha is a well-known measure used to assess the internal consistency of items. Based on Hinton et al. (2004), we can follow this recognized scale which states that we have an excellent reliability if the Cronbach alpha is 0.9 or higher, high reliability for a value between 0.7 and 0.9, moderate reliability for a value between 0.5 and 0.7 and a low reliability if Cronbach alpha is 0.5 or less. We can see that for all items, Cronbach alpha is higher than 0.9, with 0.973 the lowest for SP and 0.986 the highest for ITU, which concludes an excellent reliability for our items.

SP	PEOU	PU	ITU
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N of Items	5	6	6	3
N	84	84	84	84
Cronbach	0.973	0.979	0.984	0.986

Alpha

Table 6: Reliability analysis results

Then, we performed the linear regression test to prove the relationship between our variables and answer our hypotheses mentioned previously. In this step, we can use the structural equation modeling, but due to technical and time constraints we decided to use regression instead as it works as well for our model. For that matter, we executed the linear regression between the variables in the model and got the results in the table below. The test was performed at a confidence interval of 95% which means that for a relationship between two variables be considered significant, the p-value must be < 0.05 . As shown, the p-value in all cases was 0.000 which is less than 0.05 and indicates a statistical significance. In other terms, we can say that there is a relationship between the variables studied: SP and PU in H1, SP and PEOU in H2, PEOU and PU in H3, PU and ITU in H4, PEOU and ITU in H5, SP and ITU in H6. The Beta is the correlation coefficient which varies between -1 and 1 where 1 is a perfect positive relationship and -1 is a perfect negative relationship. Being positive in all outcomes, the correlation coefficient shows a positive relationship between all of our variables. And since the numbers are ranged between 0.7 and 0.9, we can say that the positive relationship between our variables is considered strong. As a result, we reject the null hypothesis.

	Beta	Sig	Status
H1. There is a positive relationship between social presence and perceived usefulness of intranet.	0.797	.000	Verified

H2. There is a positive relationship between social presence and perceived ease of use of intranet.	0.817	.000	Verified
H3. There is a positive relationship between perceived ease of use and perceived usefulness of intranet.	0.931	.000	Verified
H4. There is a positive relationship between perceived usefulness and intention to use of intranet.	0.881	.000	Verified
H5. There is a positive relationship between perceived ease of use and intention to use of intranet.	0.867	.000	Verified
H6. There is a positive relationship between social presence and intention to use of intranet.	0.833	.000	Verified

Table 7: Linear regression results

Finally, we conducted an analysis of variance (ANOVA). The significance level in ANOVA is less than 0.05, as shown in the table below, which means that there is a statistical significance between our variables.

		Sum of Squares	df	Mean Square	F	Sig.
SP	Between Groups	100.402	1	100.402	103.486	.000
	Within Groups	79.556	82	.970		
	Total	179.958	83			
PEOU	Between Groups	48.235	1	48.235	43.480	.000
	Within Groups	90.967	82	1.109		
	Total	139.201	83			
PU	Between Groups	47.742	1	47.742	39.292	.000
	Within Groups					

	Within Groups	99.634	82	1.215		
	Total	147.377	83			
ITU	Between Groups	66.931	1	66.931	52.530	.000
	Within Groups	104.480	82	1.274		
	Total	171.411	83			

Table 8: ANOVA results

As a recap, Hassanein and Head showed in their research that the levels of social presence can be manipulated through design elements such as socially rich text and pictures, emoticons, etc. which we followed in our experiment. The results in this paper show that the manipulation done affected the levels of social presence perceived by the users. These latter were able to recognize high levels of social presence translated into human contact, warmth and sensitivity, personalness and sense of sociability in the intranet where SP was manipulated through socially rich text and images.

The results demonstrate also that there is a relationship between the variables in our model. So social presence affects the perceived ease of use, perceived usefulness and the intention to use intranet portals; perceived ease of use affects also the perceived usefulness and intentions to use the portals; and perceived usefulness affects also the intentions to use which actually proves all of the hypothesis we stated before.

CHAPITRE 7 – CONCLUSION

XV. DISCUSSION

In our study, we talked deeply about two main concepts: intranets and social presence.

Firms have acknowledged the importance of intranet and the attractive options it provides for the efficient collaboration, easy communication and knowledge sharing between employees. Due to its easy accessibility, it made working possible in virtual environments specially for the geographically dispersed employees. Intranets matured throughout the years and enclosed new features where it made the access possible not only for employees, but for suppliers and customers as well.

Despite intranet's great importance, we discussed the main non-technical issues faced by its users. We acknowledged, based on previous literature, that the lack of human presence in intranet have left them unused by the employees. These latter believe intranets can be boring and lack of human warmth and connectedness. For this matter we introduced the social presence theory because of its known benefits for infusing human warmth and the feelings of being with another in virtual environments.

Social presence has been used in several industries to explore the sense of being "present" in virtual environments and how it will affect people's behavior and attitude like trust and loyalty. We showed how this concept has been used in computer mediated communications which include e-learning and in social commerce to raise the levels of connectedness and collaboration. The use of social presence has increased the levels of trust and loyalty as it affects directly the user's intentions, attitude and behavior toward the technology.

This study is the first to discuss employees' behaviors in the context of intranet usage. It allowed us to better understand the non-technical issues faced by users while surfing intranet portals which results in intranets being left unused although their well-known importance on company and individual levels. We were aiming to find answers for our research questions and find if the implementation of social presence will

eliminate the feelings of loneliness and lack of interaction while raising the levels of connectedness and awareness of other people and estimating a link between social presence and intentions to use intranets.

Using the famous TAM as a theoretical framework to explain factors influencing the intentions to use such technologies, our two experimental websites we developed where we infused low levels and high levels of social presence, our questionnaires and different statistical tests, we were able to find a significant connection between all variables in our model and completely support our hypotheses. There was a strong and positive relationship between social presence and each of the perceived usefulness, perceived ease of use and most importantly intention to use. There was also a strong positive connection between perceived ease of use, perceived usefulness and intention to use.

Based on our findings and results, we concluded that social presence manipulation in the interface of the intranet allowed users to feel the presence of other people which got translated into the human contact, warmth and sensitivity they were able to feel while surfing the template filled with socially rich texts and pictures. While the participants who surfed the intranet template with low levels of social presence were not able to report the same feelings of warmth and human presence. This allows us to say that social presence cues like socially rich texts and pictures and the use of emojis are directly linked to human emotions. Higher levels of social presence will lead to more positive emotions and lower levels will lead to less positive human emotions.

These results can have direct implications on intranet designs. Web designers, marketing executives and people responsible for intranets in organizations are encouraged to infuse social presence in their intranet web interface because of its potential impact on employees attitude, emotions and usage behavior. Material used should be rich in social presence as it will evoke positive emotions and awareness of other people in virtual environments while also limiting the feelings of boredom and the lack of human interactions.

XVI. LIMITATIONS

Same as any research, there are some limitations that are faced and should be mentioned.

First, and although there was a number of research talking about social presence in different industries like retail and education, there was no research whatsoever linking social presence with intranets. Social presence has been studied in a web context, but not in an intranet specific environment.

Second, and due to time constraints, we were not able to create actual web based homepages for our experiment and had to use Canva instead, which may have been a limit to the respondents' interactivity with the intranet. Another time limitation was the sample size, around approximately 40 respondents for each survey within a period of 2 weeks.

Third, and due to access constraints, we were able to check only the homepage of three different intranet portals and base our template on them which might have been a limit and prevented us from including all the options that are usually implemented in the intranet homepage to highlight them or for easy access.

Finally, and due to technical and time constraints, we were not able to perform the structural equation modeling to prove our hypothesis and instead used linear regression for each set of variables.

XVII. FUTURE RESEARCH

Despite its limitations, our project allowed us to uncover a new research direction for academics who are interested in the theme of social presence. Since this topic has not been studied in the context of intranets before, various topics can be researched to add on the one we had. Future research can include:

- Create the experimental intranet homepages as websites instead of images to reassess the ease of use and usefulness of the technology and the levels of users' interaction

- Perform the data analysis using the structural equation modeling instead of linear regression
- Study the reaction of implementing social presence in intranets across diverse users from different countries, cultures, age ranges, etc.

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ABBREVIATIONS AND ACRONYMS USED

TAM: Technology Acceptance Model

SP: Social Presence

PEOU: Perceived ease of use

PU: Perceived usefulness

ITU: Intentions to use

