



# **Predictors of nomophobia and online identity: The contribution of nostalgia to phone and online attachment.**

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## **Abstract**

**Title:** Predictors of nomophobia and online identity: The contribution of nostalgia to phone and online attachment.

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The presence of smartphones in everyday life has become so frequent that people cannot spend a day without checking their phones. This recent addition is defined as nomophobia, the dependency on mobile phones and the need to be constantly online, as a way to ensure one's online presence, i.e. self-sense of online identity. However, what predicts such a need? Based on theoretical reasoning, I suggest that nostalgia, or the self-selection of positive content from the past, is associated with this dependency. Although brands began to develop content that evokes old memories, i.e. nostalgia, to link consumers with positive content from the past, it is still missing to understand the relation between nostalgia and nomophobia/online identity. In this sense, the present dissertation investigated if nostalgia predicts nomophobia/online identity and, subsequently, if this relationship is moderated by age and gender. To this end, six hypotheses, testing the relationship between nostalgia and nomophobia/online identity and their potential moderators, were elaborated. Results showed that higher levels of nostalgia translated into higher levels of nomophobia and online identity. This may be explained by the sense of continuity that nostalgia promotes. However, this relationship is not moderated by age or gender. This means that a sense of self-continuity might be a similar need across individuals. Learning this, digital marketers and brands with online presence will be able to improve their campaigns with nostalgic content, contributing to extend consumers' online identity.

**Keywords:** nomophobia, online identity, social media, nostalgia

## **Sumário**

**Título:** Preditores de nomofobia e identidade online: a contribuição da nostalgia para o apego com telefone e para o apego online.

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A presença de smartphones no dia-a-dia dos indivíduos tornou-se tão frequente que estes não conseguem passar um dia sem verificar os seus telemóveis. Essa adição recente é definida como nomofobia, a dependência de smartphones e a necessidade de estar constantemente online, de modo a garantir a presença online, ou seja, o senso de identidade online. No entanto, o que prevê tal necessidade? Com base no raciocínio teórico, sugiro que a nostalgia, ou a auto-seleção de conteúdo positivo do passado, esteja associada a essa dependência. Embora as marcas tenham começado a desenvolver conteúdo que evoca memórias antigas, ou seja, nostalgia, para vincular os consumidores a conteúdo positivo do passado, ainda falta entender a relação entre nostalgia e nomofobia/identidade online. Nesse sentido, a presente dissertação investigou se a nostalgia prediz a nomofobia e identidade online e, posteriormente, se essa relação é moderada pela idade e género. Para tal, foram elaboradas seis hipóteses, tendo como objetivo testar a relação entre nostalgia e nomofobia/identidade online e os seus possíveis moderadores. Os resultados mostraram que níveis mais altos de nostalgia se traduzem em níveis mais altos de nomofobia e identidade online. Tal poderá ser explicado pelo senso de continuidade que a nostalgia promove. Contudo, esta relação não é moderada nem pela idade, nem pelo género. Assim sendo, o senso de auto-continuidade pode ser uma necessidade semelhante entre indivíduos. Aprendendo isso, profissionais de marketing digital e marcas com presença online poderão melhorar as suas campanhas com conteúdo nostálgico, contribuindo para aumentar a identidade online dos consumidores.

**Palavras-chave:** nomophobia, identidade online, mídias sociais, nostalgia

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# Chapter 1: Introduction

## 1.1 Background and problem statement

Smartphones have revolutionized the mobile phone market. Due to technological advances and the introduction of new features, smartphones facilitate communication wherever people are, allowing them to be constantly connected and to have regular access to information. The presence of smartphones in people's daily lives became so frequent that they started to be dependent on these devices (Yildirim & Correia, 2015).

The evolution of smartphones also brought along the possibility of maintaining an online presence, increasingly growing into an urge (Durak, 2018). For example, statistics show that people access social media platforms on average 136 minutes per day (Statista, 2019). As a result, the inability to access the mobile phone is perceived as a loss of contact with their social media environment and increases anxiety feelings of not knowing what is happening at the moment (Durak, 2018). These addictive, anxiety feelings emerge as a current phobia from the 21<sup>st</sup> century, named "nomophobia" (Yildirim & Correia, 2015). Nomophobia is the abbreviation of "no-mobile-phone phobia" and can be translated into the fear of being away from the mobile phone or internet (Durak, 2018). According to a study conducted in UK, with more than 2100 mobile users, 53% suffered from nomophobia. The study also revealed that a larger percentage of men (58%), when compared to women (48%) get anxious when their mobile run out of battery or credit, when they lose their mobile phone or do not have access to a network (Mail Online, 2008). This anxiety behaviour is caused by the loss of connectivity that smartphones provide, the inability to communicate and access information (Yildirim & Correia, 2015).

Loneliness is therefore one of the consequent feelings of being away from the digital world (Durak, 2018). Feeling lonely decreases the perception of social support, as individuals do not benefit from the sense of being accompanied, a sense arising from joining an online group, from sharing similar experiences with others or just from being part of the development a stronger community group (Durak, 2018; Zhou, Sedikides, Wildschut & Gao, 2008; Seehusen et al., 2013). For this reason, social media is perceived as one of the contemporary forms that is crucial to increase individuals' sense of belonging (Quinn & Oldmeadow, 2013; Youn & Jin, 2017), providing a sense of connection to the online identity, and ensuring connectedness and the need for an online presence (Yildirim, 2014).

Consequently, when one is actively contributing to an online community by sharing content, one is also creating content and memories in the digital world (van Dijck, 2011). Memories are one of the greatest predictors of nostalgia (Althuizen, 2008; Muehling, Sprott, & Sultan, 2014; Phau & Marchegiani, 2011; Seehusen et al., 2013; Sierra & McQuitty, 2007; Zhao, Muehling, & Kareklas, 2014). Nostalgia is an affective process that accompanies autobiographical memories (Barrett et al., 2010). Being aware that people devote more time to social media and have the need to be constantly online, brands started to develop content that evoked past meaningful memories to make consumers feel nostalgic, reconnecting people, places, and events aiming to reach the audience emotionally (Youn & Jin, 2017) since many memories are accessible through media (Menke, 2017). Therefore, brands could strongly link consumers with positive content from their past.

In a traditional marketing context, nostalgia-oriented ads have been found to evoke pleasant memories and lead to a favourable brand attitude, which translates into purchase intentions (Menke, 2017; Youn & Jin, 2017). In fact, 71% of users who see personal value in a product will be willing to spend their money on the same product (Ad-rank, 2015). In addition, one study revealed that nostalgia evoked through advertising is such an engaging practice that it enhances perceptions toward the brand, establishes a bond with brand and nurtures the brand–consumer relationship (Merchant, Latour, Ford, & Latour, 2013).

However, nostalgic content is not only published by brands. Social media users record much of their past memories on their profiles as they share those memories with their friends and family (Gross, 2018). Furthermore, nowadays many people have joined the online *#ThrowbackThursday* or *#TBT* movement, which consists in a hashtag movement with the aim of posting nostalgic content every Thursday on social media to share it with the people they are connected with and others who may have experienced the same thing (Tran, 2019).

Accordingly, considering that nostalgia represents mostly positive affect associated with past memories (Juhl, Routledge, Arndt, Sedikides, & Wildschut, 2010), it should be associated with the need to be constantly online and attached to the smartphone. This is because the creation of memories is constant and leaves little room for information loss when everything is recorded online (digital footprint) (Mazzoni, 2019). Thus, taking into consideration that nostalgia is a growing phenomenon in social networks that can affect online consumer behaviour (VanMeter, Grisaffe, & Chonko, 2015), especially in adolescents (Quinn & Oldmeadow, 2013), it is vital for brands with online presence to understand the link between nostalgia and the need to be constantly online in

order to perform marketing campaigns and, to produce competitive advantages. Hence, the problem statement of this dissertation aims to study the relationship between nostalgia and the individual's identity behaviour. Mainly, I aim to understand if nostalgia predicts our attachment with mobile phones and social media. This may allow for a better implementation of nostalgic digital marketing campaigns.

## **1.2 Aims and scope**

The aim of this dissertation is to provide an overview of the contribution of our past positive feelings, nostalgia feelings, to online attachment. In general, the purpose is to analyse the relationship between nostalgia and nomophobia as well as online identity and whether this link is dependent on individual difference factors such as age and gender. Nostalgia is increasingly commonly used on social networks as a powerful practice to promote brand engagement (Youn & Jin, 2017). Additionally, nostalgia marketing campaigns on social media are one of the most effective ways to leverage past positive memories in order to improve consumer attitudes toward the brand and consequently, influence their behaviour (Merchant & Rose, 2013; Sierra & McQuitty, 2007; Youn & Jin, 2017). Nonetheless, as far as I know, it is yet to understand why individuals react so strongly to nostalgic online content. I predict that the reason is because nostalgia predicts nomophobia and online attachment. By that, I mean that individuals pursue a sense of continuity (Routledge, Arndt, Sedikides, & Wildschut, 2008; Sedikides, Wildschut, Arndt, & Routledge, 2008), provided by the current digital world: a continuous way to our record memories for good. These memories, which have been recorded and will be ever available, will be evoked every time one feels nostalgic. Therefore, the more nostalgic an individual is, the more nomophobic and attached to her/his online identity s/he should be.

Furthermore, the relationship between nostalgia and gender is somewhat controversial. Some scholars argue that nostalgia is predominant in older generations (Davis, 1979), others considered that the younger ones are more nostalgic (Madoglou, Gkinopoulos, Xanthopoulos, & Kalamaras, 2017). There is also a study that pointed out that each individual feels nostalgia in their own way (Batcho, 1995). Additionally, there is also no consensus regarding gender differences. According to some studies, men tend to be more nostalgic than women (Davis, 1979). Other studies held the opposite view (Holbrook, 1993). There is also research that stated that there are no differences in age (Wildschut, Sedikides, Arndt, & Routledge, 2006) and that they only exist when considering different age groups (Batcho, 1995). However,

regarding the relationship between nomophobia and age as well as online identity and age, studies found that the younger generation gives more importance to their mobile phone to ensure their online presence (Durak, 2018; Yildirim, 2014). Thus, it becomes crucial to understand whether the relationship between nostalgia and nomophobia, as well as online identity, can be moderated by gender and age. Therefore, this dissertation sought to answer the following research questions:

**Research Question 1:** Does nostalgia predict nomophobia and the need for online presence?

**Research Question 2:** Is this link moderated by inter-individual differences, such as gender and age?

This dissertation seeks to assess (1) whether nostalgia predicts nomophobia and the need to be online (online identity) and (2) to disclose some socio-demographic features of the target audience of this link. These research questions will be answered through a statistical analysis of the data from *The Human Penguin Project*, a cross-national dataset, designed to investigate the principles surrounding the idea of social thermoregulation (IJzerman et al., 2018).

### 1.3 Research methods

With the aim of answering the research questions above mentioned, this dissertation follows a descriptive approach. In particular, quantitative secondary data collected from *The Human Penguin Project* will be analysed to test the previously mentioned research questions. The data collected contained a total sample of 1523 participants from 12 countries, in which body temperature, demographic variables, and social network indices were recorded in order to investigate the relationship between environmental factors (e.g., geographical, climate, etc.) and human behaviours (IJzerman et al., 2018). Taking into consideration the goal of this study, nostalgia, nomophobia, and online identity data as well as some relevant demographic information, namely gender and age, were extracted from the dataset. Moreover, statistical analyses were performed through the software SPSS. For these statistical analyses, individual's nomophobia behaviour and online identity were defined as dependent variables, measured through a 20 items scale, while nostalgia, measured by the Southampton Scale Nostalgia, which consists of a definition of the word nostalgia to assess nostalgic tendencies (Menke, 2017), was considered as the independent variable. Additionally, age and gender were considered as potential moderators of this link.

## **1.4 Relevance**

Building social connection through nostalgia marketing campaigns is an effective way for companies to leverage the optimistic feelings that often accompany memory (Friedman, 2016). By invoking positive feelings from the past, a brand can reach its audience on an emotional level and link the brand's content to previously experienced concepts to evoke feelings of security and trust. This can mean to customers that the content is worthy of attention because it is associated with something that they are familiar with (Gross, 2018). Furthermore, as mentioned earlier, marketers started developing nostalgic content on social media. However, the most important factor here has been missing: does nostalgia actually promote the need to be constantly online? Considering the individual's need of being constantly informed and connected will allow the development of campaigns in a more efficient way. Additionally, I propose to decode a socio-demographic profile of these users, to whom nostalgia predicts the need to be constantly online. Adding this layer of information will help to target the audience who will respond more often and more actively to nostalgic content.

Thus, this research will be crucial for digital marketers and all brands with digital presence to develop a more effective social media marketing strategy and targeting the interested audience. If a marketing strategy is aligned with past consumer experiences and online identity, it should more easily lead to increase brands' perceptions and consumers' purchase intentions. Moreover, being also one of the aims of this dissertation to study if this relationship varies with age and gender, brands will be able to select the audience they want to reach and thus, develop more targeted nostalgic campaigns in order to increase brand performance in social media. Additionally, to the best of my knowledge, literature on nostalgia has focused on marketing in general and not so much on social networks, nor on the concept of nomophobia and online identity. Hence, from an academic perspective, this dissertation addresses this gap by analysing the relationship between nostalgia and online behaviour. In addition, it contributes to future research in this field.

## **1.5 Dissertation outline**

This dissertation is organized into five different chapters. Chapter 1 covers the background of the topic that will be addressed as well as the problem statement, followed by the thesis' aims, scope and relevance. It addresses also a general overview of the research design and

methodology. In Chapter 2, a literature review of the relevant topics for this dissertation is presented, as well as the research hypothesis. Chapter 3 describes the methodology used throughout this project to collect the necessary data. This chapter includes a detailed description of the project, which serves as a dataset to extract the relevant data. Chapter 4 reports and discusses the main results obtained. Lastly, Chapter 5 addresses the main conclusions of these findings, limitations of the study and suggestions for further research.

## **Chapter 2: Literature Review and Conceptual Framework**

The present chapter serves as a summary of the existing literature on previous research from various fields of study. This theoretical chapter is divided into four main sections: 1) Nomophobia, 2) Online Identity, 3) Social Media and 4) Nostalgia. Subsequently, conclusions will be drawn in order to develop the hypotheses.

### **2.1 Nomophobia**

Nowadays, smartphones have become an essential element in our daily lives, especially among the younger generation, and are part of our technological culture (Ayar, Özalp Gerçeker, Özdemir, & Bektaş, 2018). As a result, people are becoming increasingly dependent on their mobile phones (Durak, 2018). Thus, the concept of nomophobia emerges as a concept used to define the phobia of not being able to access and communicate through a mobile phone or web, i.e., being technologically unavailable (Yildirim, 2014; Yildirim & Correia, 2015). Additionally, nomophobia is also referred to as dependence on mobile phones or an addiction to mobile phones (Olivencia-Carrión, Ferri-García, Rueda, Jiménez-Torres, & López-Torrecillas, 2018).

Nomophobia is the abbreviation for “no-mobile-phone phobia” and was first identified in 2008 in a study conducted by the UK Post to investigate the anxieties that mobile phone users suffer (Yildirim, 2014). In one of the first research studies, nomophobia was defined as a 21<sup>st</sup> century disorder, resulting from technological developments that enable virtual communication (Bragazzi & Del Puente, 2014). It referred to a discomfort or anxiety behaviour performed by an individual when s/he was distant from the mobile phone (MP) or computer and so, and therefore, not digitally connected (Yildirim, 2014; Yildirim & Correia, 2015). Another study found that this disorder of the contemporary society was introduced as a product of the interaction between people and mobile information and technologies and was used to describe the discomfort and anxiety suffered by those who habitually use electronic devices (Yildirim & Correia, 2015). Overall, nomophobia is the pathological fear of staying out of touch with technology (Lee, Kim, Mendoza, & McDonough, 2018).

Although the definitions encompass not only mobile phones but also computers, the concept of nomophobia is mostly used when we want to refer to the mobile phone attachment. This is due to the fact that nowadays computers have been replaced by smartphones because of their many features, which eventually equal or surpass the functionality of computers. Thus, the

dependence on this advice has been increasing, which exacerbates the feelings of anxiety (Yildirim & Correia, 2015).

Nomophobia has its origin in the following four dimensions: 1) inability to communicate, (2) inability to access information, (3) giving up convenience and (4) losing connectedness. The first dimension refers to the feelings of not being able to connect with others and to be reached out, while the second reflects the discomfort of losing access to information, being unable to retrieve information through smartphones and seeking information. The third dimension concerns the feelings of loss of convenience that the mobile phone provides and therefore reflects the desire to use the convenience of having a smartphone. Lastly, the fourth dimension, loss of connection, is seen as a loss of the ubiquitous connectivity that smartphones provide and, in turn, a sense disconnection of online identity, especially on social media (Yildirim, 2014).

Individuals who reveal nomophobia continually look for messages or calls and experience anxiety and anguish when outside the coverage area, when they forget to take mobile phones with them or when their battery power runs out. Additionally, they tend to keep their smartphones on 24 hours a day and usually even take them to bed with them (Ayar et al., 2018). In fact, a study conducted among 200 medical students reported that 18.5% of the students have nomophobic behaviours, 73% reported that they keep their mobile phones close to them while sleeping and 20% feel under pressure and lose concentration when they do not have their phones or when they run out of battery (Madhukumar et al., 2015). Furthermore, studies have suggested that, in addition to the symptoms of fear, excessive mobile phone use is closely associated with the notions of compulsiveness (Lee et al., 2018).

Recent research has suggested that nomophobic individuals experience stress when their smartphones are out of reach (Samaha & Hawi, 2016). Stress, in turn, has several negative consequences, including reduced well-being, chronic health problems but also, decreased productivity (Tams, Legoux, & Léger, 2018). Another serious consequence perceived as a result of being away from smartphones is loneliness. Loneliness is the emotional result of losing the connectivity that electronic devices provide and so, not being able to meet social and emotional expectations in relationships as a cause of lack of social communication and belonging to a social group. Therefore, it can be reduced by seeking support in social networks (Zhou, Sedikides, Wildschut & Gao, 2008).

Thus, this fear of being away from mobile phones is perceived as an inability to satisfy the need to be permanently informed and connected with the online world. For this reason, when



away from the mobile phone, individuals feel disconnected from their online identity (Yildirim, 2014).

## **2.2 Online Identity**

Identity is a socially and historically constructed concept that defines who a person is and therefore, implies a self-definition or self-understanding (Fearon, 1999). In addition, identity plays a key role in individuals' behaviours, in the way they think, but also in their emotions. Moreover, identity determines what is important to individuals and what they pay attention to (Leary, 2019). Although various types of identity may be considered, in this dissertation I will focus only on online identity.

According to Yildirim (2014), nowadays younger generations attach great importance to the digital. They ensure that they receive notifications from their smartphones, and they also show this desire to check for those notifications on their smartphones. They see notifications as a way of ensuring connectedness: if they have notifications, it means that they stay connected to their online identity and online networks (Yildirim, 2014). Accordingly, recent data show that 20% of the population feel nervous when disconnected from their own online identity, feel uncomfortable when unaware of social media events and awkward when not checking notifications (Kanmani, U, & R, 2017). Therefore, online identity can be perceived as a digital need, given that living in a technological age, there is a demand to be constantly online, i.e., always be present online, always able to contact and be contacted but also be able to follow social media news, namely what people are posting.

## **2.3 Social Media**

Social media (SM) is a revolutionary trend, which achieved its popularity in 2005 resulting from the ideological and technological foundation of Web 2.0 phenomenon (Kaplan & Haenlein, 2010). The concept is used to refer to all the forms of media content available and created by end-users (Kaplan & Haenlein, 2010) and is defined as mobile and web-based technologies, designed to facilitate communication and interaction across communities and virtual networks (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011).

Through social media, users can interact, share content, knowledge, and opinions and consume information quickly, efficiently and in real-time (Hudson, 2018). Furthermore, by creating communities and social networks, social media can help improve an individual's sense of belonging and supports the human need for social interaction (Allen, Ryan, Gray,

McInerney, & Waters, 2014). Although virtually, social media addresses the fundamental human motive to connect with others and to belong to a group (Leiter, 2014).

Social media differ from traditional media in several ways, mainly in terms of audience (SM can reach a broader audience), interaction (SM is a two-way conversation, and traditional is one-way) and control (SM offers greater control over the message) (Muck Rack, 2018).

Moreover, the term social media is associated with user-generated content (UGC) and so, the creation and exchange of this type of content is also a feature of this communication channel (Kaplan & Haenlein, 2010).

In recent times, social media has impacted many aspects of human communication and so, it has become a daily practice in the lives of some users (Edosomwan, Prakasan, Kouame, Watson, & Seymour, 2011). One study revealed that, on average, a person spends 5 years of his/her life on social media, which is more time than people will spend eating and socializing. This study also found that 86% of people use social media at least once per day, including 72% who use it multiple times per day (Herhold, 2018). Therefore, due to this daily use, social media experts have been creating content to make people excited, shifting from what is “liked” to what engage consumers. To this end, content is designed to become personally relevant by invoking situations and events people have experienced in the past (Merchant et al., 2013).

### **2.3.1 Past memories on Social Media**

As individuals turn to social media to stay connected and to be part of social communities, digital marketers embrace past experienced themes, evoking pleasant memories of the past, i.e. nostalgia, in their advertisements within social media (Youn & Jin, 2017). By recalling such memories, individuals easily engage with content because it is something they have already experienced and are already familiar with. Moreover, by doing so, a brand can reach its audience on an emotional level. Therefore, an affective relationship between the brand and the social media user can be easily established (Friedman, 2016; Gross, 2018).

Furthermore, social media provides an easily accessible platform for remembering and sharing with others. In this sense, social media users are increasingly using hashtags such as *#ThrowbackThursday*, also known as *#TBT*, and *#FlashbackFridays* to remember past memories with the people they are connected to and others who may have experienced the same (Tran, 2019).

Moreover, according to the ScienceDaily website, when people write about personal experiences, reflect on them, or talk about them with others, they tend to remember these events much better. In addition, the act of publishing such memories on social media also plays a role in building the self. This is because as people remember, evaluate and share memories of past experiences, they are creating a sense of themselves since they are not only shaping the way they view those experiences but also the way they see themselves. This is especially facilitated by the interactive functions on many social media sites, such as Facebook and Instagram (ScienceDaily, 2016). These platforms store content in chronological order, making it easy to find important moments of their users' lives (Bradic, 2015). In addition, they occasionally recall past experiences through photos and posts from previous years (ScienceDaily, 2016). Therefore, this external memory-enabling feature on social media platforms attests to the desire of people who wish not only to reflect on glory days but to do so with their friends and family (Gross, 2018).

In light of the above, nostalgic themes have been increasingly addressed on social media, both by brands and their users, connecting individuals who have experienced the same feelings from past memories (Youn & Jin, 2017). In addition, social media can help to catalogue people's lives by storing their memories by dates (Bradic, 2015). In this way, social media not only serves as a platform to share memories but also helps its users to organize happy times.

## **2.4 Nostalgia**

There is much academic discussion about what is it exactly that nostalgia is. The term appeared at the end of the 17th century as a homesickness disease (Althuizen, 2008). By the mid-20th century, studies considered nostalgia a repressive compulsive disorder related to the subconscious desire to return to an earlier phase of life. According to this view, the more dissatisfied people are with the present life, the more they long for and want to revert to the past (Sedikides et al., 2008), although, new perspectives started to defined nostalgia more as a psychological strength (Juhl et al., 2010).

Specifically, nostalgia is an affective process that can accompany autobiographical memories (Barrett et al., 2010). It has been described as self-relevant and highly social positive emotional reflection on the past, which gives rise mainly (though not exclusively) to positive affect. First, nostalgia reinforces the self-concept. Nostalgic narratives are self-relevant so that when thinking about nostalgic situations compared to an ordinary situation, higher levels of self-esteem are achieved as well as self-positive associations. Second, nostalgia strengthens

social connections. When remembering past memories, the self is often surrounded by close ones, which results in greater feelings of being "loved" and "protected", and lower feelings of anxiety and avoidance of attachment. Third, nostalgia is a source of positive affect. Nostalgic memories usually tend to be more positive than negative, and when they contain negative elements, the narrative progresses from a negative life scene to a positive or triumphant scene, what is called the redemption process (Juhl et al., 2010; Routledge et al., 2008).

Furthermore, some scholars consider nostalgia to be bittersweet in nature, characterized by a mixed emotional experience, including positive emotions and a sense of loss resulting from the knowledge that something desirable in the past is not attainable (Youn & Jin, 2017).

Nevertheless, some have labelled this sentimental longing for the past as an existential function (Juhl et al., 2010) as it heightens perceptions of life as meaningful and so, protects against the consequences of death consciousness (Juhl et al., 2010). In fact, one study reported that after being reminded of their mortality, the more nostalgic participants felt, the more meaningful they considered their lives. Moreover, after reminders of mortality, participants who engaged in nostalgia feelings or received nostalgia induction had fewer thoughts related to death (Sedikides et al., 2008).

In light of what has been stated, nostalgia can be considered a mixture of cognitive (memories) and affective processes (Batcho, 1998). The cognitive component refers to a past memory of a certain place, at a given moment, and therefore, is rich in content. The affective component concerns the emotions evoked by memories and is described as bittersweet, containing sadness and feeling of loss but also a pleasant and positive reaction (Davalos, Merchant, Rose, Lessley, & Teredesai, 2015; Phau & Marchegiani, 2011). Thus, nostalgia is considered an ambivalently felt affective-cognitive experience (Batcho, 1998). However, the implicit form of memory is believed to be more affective rather than cognitive and can be characterized as an "emotion" that is evoked when one is nostalgic. As such, symbolic representations of past events and experiences are able to bring back pleasant feelings from the past (Zhao et al., 2014).

Importantly, due to its social aspect, which makes an individual feel connected to others, nostalgia enhances the sense of identity (Sierra & McQuitty, 2007). Indeed, this sense depends largely on their relationships with others (Batcho, 1998). Accordingly, Davis (1979) argued that nostalgia helps to build a sense of identity through awareness of shared past experiences (Davis, 1979). In this way, nostalgia can serve this purpose of identity through the combination of emotion and cognition, especially memory (Batcho, 1998). Moreover, one's sense of identity can also depend on consciousness of continuity across time (Batcho,

1998). This sense of continuity between the past and the present of the self may be facilitated by nostalgia through its ability to bring out positive perceptions of the past, reinforcing meaning in one's life (Routledge et al., 2008; Sedikides et al., 2008). Past memories are important sources of self-identify and self-continuity (Morganti, Riva, Bonfiglio, & Gaggioli, 2013).

Two types of nostalgia can be considered: personal and vicarious. Personal nostalgia concerns the real and lived past and encompasses a longing for this past. Vicarious nostalgia, also referred as historical nostalgia, evokes a period of time that does not belong to the living memory, i.e., that was never directly experienced by the consumer, and examines the experience of emotionally connecting to and fantasizing about past experiences and associations (Merchant et al., 2013).

These nostalgic experiences increase as individuals get older (Davis, 1979). In this sense, the longer one lives, the more likely she/he will be of having more and more diverse experiences to recall. Additionally, according to Batcho (1995), younger people also demonstrate high levels of nostalgia. This association with age may be explained by the multiple changes in their lives. Still, the author claims that it should have a different meaning depending on how diverse were the experiences from each generation (Batcho, 1995). Therefore, feeling nostalgia is not the same for both older and younger generations. For example, older generations feel nostalgia for lost times, for deceived family members. On the contrary, younger generations often have memories of their student years, not so distant periods of life, such as childhood and adolescence and their leisure activities (vacations) (Madoglou et al., 2017).

Gender also seems to be an important aspect for nostalgic feelings. According to Davis (1979), men tend to be more nostalgic than women since. From the author's point of view, they used to travel more and go through more life changes, which should evoke nostalgia as a way of maintaining self-identity (Davis, 1979). A contrary view was presented by Holbrook (1993), who argued that women are more nostalgic (Holbrook, 1993). However, other studies stated there are no gender differences regarding nostalgia (Wildschut et al., 2006). Others argued that these differences are significant only when considering different age groups (Batcho, 1995). In this sense, adult and older women reveal higher levels of nostalgia and are more sensitive in the absence and death of family members (Madoglou et al., 2017).

Furthermore, Havlena and Holak (1991) indicated that men and women feel nostalgia for different things and each gender experiences nostalgia in different ways (Holak & Havlena, 1991). For example, women prefer items associated with sentimental memories (e.g.

photographs), while men have more materialistic preferences (e.g. cars) (Madoglou et al., 2017).

### **2.4.1 Nostalgia Triggers**

One of the triggers of nostalgia is negative affect. In fact, it has been observed that individuals in sad moods tend to retrieve positive autobiographical memories as an attempt to repair the mood more regularly than those with neutral and positive mood conditions (Barrett et al., 2010; Wildschut et al., 2006; Youn & Jin, 2017). However, loneliness is one of the main negative states that triggers such memories (Durak, 2018; Zhou, Sedikides, Wildschut & Gao, 2008; Wildschut et al., 2006; Youn & Jin, 2017).

Loneliness is associated with a perceived lack of social support and having less and less satisfying relationships than desired (Zhou, Sedikides, Wildschut & Gao, 2008). To counteract this affective state, individuals resort to past memories, i.e., nostalgia. This, in turn, enhances perceptions of social support, which reduces loneliness and contributes to a sense of belonging. Thus, loneliness affects perceived social support in two distinct ways. On one hand, the direct effect of loneliness reduces perceived social support. On the other hand, the indirect effect of loneliness increases perceived social support via nostalgia. However, this restorative function of nostalgia is particularly apparent among resilient people, that is, people who in themselves report high levels of nostalgia (Durak, 2018; Zhou, Sedikides, Wildschut & Gao, 2008; Wildschut et al., 2006).

In addition, sensory inputs, such as music or smells, can also trigger nostalgic effects, as mentioned above (Barrett et al., 2010; Wildschut et al., 2006). The same can be observed for objects linked to aspects of continuity and safety, objects that resemble friends or family, ties to the homeland, as well as items associated with arts, culture, and entertainment (Davalos et al., 2015).

## **2.5. Conclusions & Research Hypotheses**

The need to constantly check for online news on mobile phone and to take the smartphone wherever a person goes, which gives rise to the so-called nomophobia phenomenon, as well as its outcomes (discomfort, anxiety, stress, etc.) are partly due to individuals' presence in social media communities (Durak, 2018). These communities provide a foundation of social support (Clark, Algoe, & Green, 2018) and strengthen the sense of belonging (Liu & Guo, 2015). Additionally, they provide a sense of online identity, that is, social media meet the

consumer's need to be constantly accessible online (Yildirim, 2014). Thus, as people devote more of their time to social media, some digital marketers have been exploring themes that allow users to relate to the content on a personal level. In this sense, nostalgia is a very successful practice and has been increasingly approached in social media since it enhances a sense of social belongingness that makes consumers feel connected through evoking favourable memories of the past and thus, remembering happy times (Youn & Jin, 2017). In addition to the digital marketing approach, nostalgia is also approached by social media users who post memories experienced in the past in their profiles in order to remember and share such memories with their friends and family (Gross, 2018).

However, to the best of my knowledge, the relationship between nostalgia and nomophobia is underexplored. Nevertheless, if nostalgia has a strong social and emotional-cognitive component (memory), it should also be related to nomophobia and the need to be constantly online. In this sense, the following hypotheses were formulated to understand the relationship between these two concepts:

**H1:** Nostalgia predicts nomophobia.

**H2:** Nostalgia predicts individuals' online identity.

In addition, I thought it was also relevant to develop a socio-demographic profile for those individuals to whom nostalgia predicts nomophobia. Indeed, as noted in Chapter 2, for each generation, past memories take on different meanings (Batcho, 1995). Accordingly, age may moderate the relationship between nostalgia and nomophobia/online identity. Thus, the following hypotheses were created:

**H3:** There is a link between nostalgia and nomophobia as a function of age.

**H4:** There is a link between nostalgia and online identity as a function of age.

Contradictory results regarding nostalgic experiences across gender were found. Some researchers argued that men reveal higher levels of nostalgia (Davis, 1979), others defended the opposite view (Holbrook, 1993). Some even suggested that both genders experience nostalgia, however, it is originated from different things (Holak & Havlena, 1991). Therefore, it becomes crucial to understand if the strength of the relationship between nostalgia and nomophobia/online identity can be affected by gender. Consequently, the last hypotheses were developed:

**H5:** There is a link between nostalgia and nomophobia as a function of gender.

**H6:** There is a link between nostalgia and online identity as a function of gender.

These six hypotheses will be tested individually in Chapter 4.



## **Chapter 3: Methodology**

The present chapter describes the methodological approach applied in this dissertation with the aim of answering the research questions proposed in Chapter 1 and testing the hypotheses introduced in Chapter 2. Therefore, a description of the research objectives, followed by the research approach adopted, the data collection method and the data analysis tools employed in this study are presented in this chapter.

### **3.1 Research Objectives and Approach**

According to Saunders, Lewis, and Thornhill (2009), it is possible to distinguish two types of research approaches: deductive and inductive. The first approach, deductive research, concerns the development of hypotheses based on existing theory. Subsequently, a research strategy is designed to test them. The inductive research aims to develop a theory. It moves from data collection to broad generalizations (Saunders, Lewis, & Thornhill, n.d.).

Moreover, the research purpose can be from three main types: exploratory, descriptive and explanatory. An exploratory research seeks to clarify a problem that is not clearly defined. The second, descriptive approach, describes the characteristics of the population, situation or phenomenon that is being studied. Finally, explanatory research is performed to determine the causal relationships between variables (Saunders et al., n.d.).

The present dissertation followed a deductive and descriptive research in order to investigate if those who are more nostalgic tend to have a greater smartphone attachment and a sense of online identity. Additionally, secondary quantitative data were extracted from *The Human Penguin Project* dataset (IJzerman et al., 2018) to obtain the constructs of nostalgia, nomophobia, and online identity, as well as gender and age participants' information. The data of interest were selected from a publicly available database (Hu et al., 2019) and used to carry out the necessary statistical analyses with SPSS software. Moreover, the analyses intended to construct a socio-demographic profile of users, to whom nostalgia predicts the need to be constantly online.

### **3.2 Secondary Data**

Secondary data were retrieved from the dataset sourced from *The Human Penguin Project*, a crowdsourced cross-national study. The study, conducted in 2016, aimed to test the principles of social thermoregulation, a phenomenon related to environmental factors and animal

(including human) behaviours, which postulates that social networks help regulate the central body temperature of individuals. To this end, an online pilot study involving 232 participants (140 participants from Amazon Mechanical Turk and the other 92 from Prolific) was performed to provide a proof-of-concept and to enable participants to see their value of participation. Additionally, a large transnational study, with a final sample of 1523 participants from 12 countries - Germany, Chile, Turkey, Norway, UK, Poland, Portugal, Serbia, Singapore, China, US, and Switzerland - was conducted. In both studies, data such as body temperature, demographic variables, physiological information, social network indices, seven widely used psychological scales, local temperature information, and two newly developed questionnaires were collected. Therefore, the resulting data from this study contributed to understand the relationship between environmental factors and human behaviours, which is a longstanding scientific investigation (IJzerman et al., 2018).

The following table shows all the variables included in *The Human Penguin Project*:

**Table 1:** Variables in *The Human Penguin Project*.

Variable categories	Details
Body temperature	Oral temperature
Physiological information	Whether people used medication or not (and what kind)
	Whether people smoke or not (and if so, how many cigarettes)
	Daily sugary drinks consumption
	Diet drinks consumption
Basic information	Birth year
	Gender
	Height
	Weight
	Sexual orientation
	Whether people were in a romantic relationship or not
	To what degree people identified themselves being monogamous
	Self-reported health condition
Location and weather	Language
	Minimum temperature of the day
	Average humidity of the day
	Distance from equator
Social network	Longitude
	Three subscales of the Social Network Index, 32 items: network size, embedded in the social network, complex social integration
Established psychological scales	Trait Self Control Scale (13 items)
	Perceived Stress Scale (14 items)

	Southampton Nostalgia Scale (6 items about nostalgia)
	Home Attachment Scale (9 items from two sub-scales - home experience and rootness - of the place attachment scale by Harris et al. 1996)
	Nomophobia questionnaire (attach to phone, items 1–9; online id, item 10–20)
	Experiences in Close Relationships Questionnaire-Revised, (anxiety, items 1–18; avoidance, items 19–36)
	Two subscales from the revised version of Toronto Alexithymia Scale: Difficulties in Identifying and Describing Feelings, 11 items; Externally oriented thinking, 5 items
<b>New scales</b>	Social Thermoregulation and Risk Avoidance Questionnaire
	Kama Muta Frequency Scale

Source: *The Human Penguin Project*

### 3.2.1 Sample Description

As the purpose of this dissertation is to study if nostalgia predicts online identity as well as nomophobia and subsequently, to create a socio-demographic profile (considering age and gender information), to whom nostalgia predicts the need to be constantly online, only data related to nostalgia, nomophobia, age, and gender were analysed. In addition, only the results from the online cross-national study were extracted and used in this dissertation, since the resulting sample from this study is highly significant for the analysis. Therefore, a total sample of 1523 individuals was analysed. The sample consists mainly of women (70.3%), young (Mean = 25 years old,  $SD = 8.44$ ) and mostly located in the US (17,01%) and Turkey (11,88%) (can be seen in detail in Appendix 1).

### 3.2.2 Independent Variable and Moderators

**Nostalgia.** Nostalgia was measured using the Southampton Nostalgia Scale (Routledge et al., 2008), which consists of six items regarding the frequency with which an individual experience nostalgia (e.g., “*How valuable is nostalgia for you?*”, “*How significant is it for you to feel nostalgic?*”), ranging from 1 (“not at all”) to 7 (“very much”), with a good reliability index of .90, indicating that the construct has a good internal consistency.

**Gender.** The gender variable refers to the gender of the individual at birth and was considered a moderator of the link between nostalgia and online identity/nomophobia. It corresponds to a binary variable (being 1 - male and 2 - female) and so, it is a nominal categorical variable.

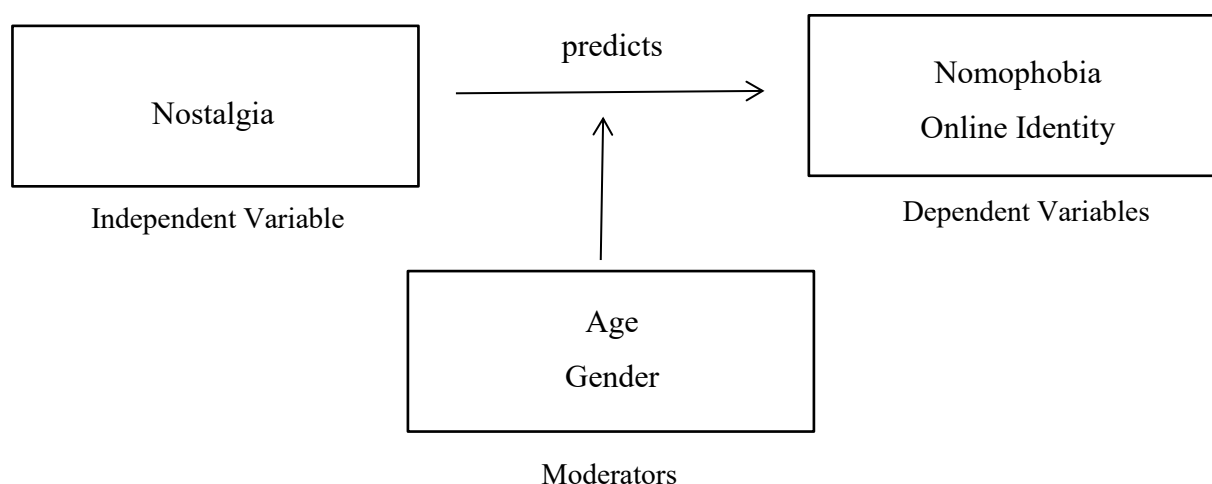
**Age.** Age (“*In which year were you born?*”) was transformed into number of years, by subtracting the year in which the data were collected to the year of birth and was subsequently tested as one moderator of the link between the independent variable and the two dependent variables.

### 3.2.3 Dependent Variables

**Nomophobia.** Nomophobia (attachment to phone) was measured on a 5-point Likert scale in order to assess the level of agreement on 9 items (e.g. “*Running out of battery in my smartphone would scare me*”, “*If I could not check my smartphone for a while, I would feel a desire to check it*”), ranging from 1 (“strongly disagree”) to 5 (“strongly agree”), with a reliability index of .89. This value indicates that the scale of nomophobia has a good internal consistency.

**Online identity.** Online identity was measured through a 5-point Likert scale, which consists of 11 items related to individuals’ need to be online (e.g. “*I would feel uncomfortable without constant access to information through my smartphone*”, “*I would be annoyed if I could not look information up on my smartphone when I wanted to do so*”), ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). In addition, online identity showed a reliability index of .90, meaning that the construct has a good internal consistency.

**Figure 1:** Research Model considering the link between nostalgia and nomophobia/online identity as a function of age and gender.



### **3.3 Data Analysis**

The collected data were compiled into the SPSS dataset and several regression analyses were conducted in order to analyse the data and test the hypotheses formulated in Chapter 2.

Therefore, two simple linear regressions were performed to assess whether the independent variable (nostalgia) can predict the two dependent variables (attachment to phone and online identity). However, before performing the tests, the necessary assumptions were analysed.

The assumption of additivity and linearity was verified and so, a linear relationship between the independent variable and the dependent variables was assumed. Moreover, there was a statistical independence as well as a constant variance (homoscedasticity) of the errors.

Lastly, the errors were normally distributed (with a mean of 0), meaning that the differences between the model and the observed data were more often zero or very close to zero.

Furthermore, the variables were measured at the continuous level and no significant outliers were verified. In addition, there was no perfect multicollinearity and the independent variable (nostalgia) had a nonzero variance.

Additionally, four moderation analyses were performed to investigate whether the linear relationship between the independent variable and the dependent variables could be moderated by age and gender, individually.

## Chapter 4: Results and Discussion

The present chapter aims to report and discuss the results obtained from the statistical analysis in order to answer the research questions proposed in Chapter 1, as well as to test the hypotheses mentioned in Chapter 2.

### 4.1 Preliminary Analysis

An exploratory analysis was first performed to test the degree of association between the variables, before conducting the analyses. The table below reports the correlations among variables, indicating which correlations are statistically significant at  $p < 0.01$ .

**Table 2:** Descriptive and Correlations among variables.

	Descriptive		Correlations			
	Mean	SD	1	2	3	4
<b>1. Nomophobia</b>	2.86	0.84	-			
<b>2. Online id</b>	2.76	0.78	.760**	-		
<b>3. Nostalgia</b>	4.32	1.32	.224**	.228**	-	
<b>4. Age</b>	25.04	8.44	-.230**	-.207**	-.163**	-
<b>5. Gender</b>	-	-	.071	.107**	.110	-

\*\* Correlation is significant at the .01 level (2-tailed)

Results showed a statistically significant positive association between online identity and nomophobia ( $r = .76, p < .01$ ). This means that higher levels of online identity are associated with higher levels of nomophobia. However, although the difference is small, it is possible to conclude that individuals reveal higher levels of nomophobia ( $M = 2.86, SD = 0.84$ ) than online identity ( $M = 2.76, SD = 0.78$ ). Moreover, there is a significant linear relationship between nostalgia and nomophobia ( $r = .22, p < .01$ ) and nostalgia and online identity ( $r = .23, p < .01$ ), as expected. The link between gender and online identity ( $r = .11, p < .01$ ) was also statistically significant and positive. Therefore, women demonstrate higher levels of online identity. Furthermore, a statistically significant negative association between age and nomophobia ( $r = -.23, p < .01$ ), and online identity ( $r = -.21, p < .01$ ) as well as age and nostalgia ( $r = -.16, p < .01$ ) were found. In this sense, older individuals show lower levels of nomophobia, online identity and nostalgia. Additionally, there is not an association between gender and nomophobia, and gender and nostalgia.

## 4.2 Main Analysis

### 4.2.1 The link between nostalgia and nomophobia/online identity.

Since one of the aims of this thesis is to investigate whether nostalgia predicts nomophobia and online identity, two simple linear regressions were conducted. From the results of the first analysis, which aimed to study the link between nostalgia and nomophobia, it was possible to conclude that there is a linear relationship between nostalgia and smartphone attachment. The regression model was statistically significant  $F(1,1505) = 70.19, p < .05$ , meaning that nostalgia is a predictor of nomophobia ( $\beta = .22, p < .05$ ). Additionally, nostalgia explains 5% ( $R^2 = .05$ ) of individuals' attachment to phone variance, which is a considerably small value. This means that 95% of the total variation in the individuals' mobile phone dependence cannot be explained by nostalgia and so, there might be many other factors that can explain this variation.

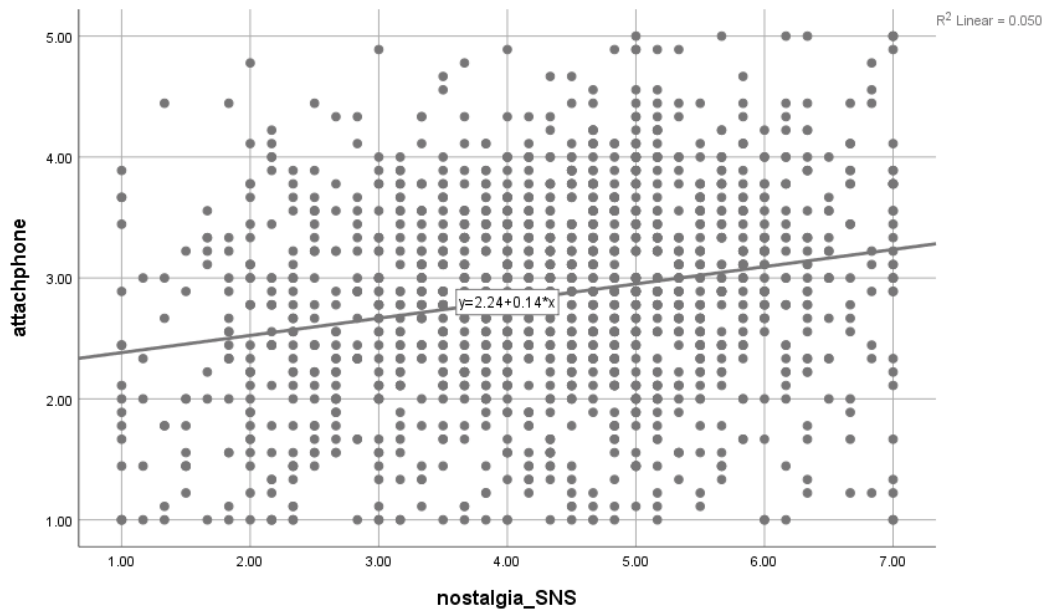
Furthermore, a second regression analysis was performed in order to test whether nostalgia predicts online identity. Results showed that the regression model was statistically significant,  $F(1,1505) = 88.22, p < .05$  and thus, nostalgia predicts individuals' need for online presence ( $\beta = .23, p < .05$ ). Proportionally, nostalgia explains 5.2% ( $R^2 = .052$ ) of the online identity variance, which is also a considerably small value.

**Table 3:** Regression Models' results (Model Summary, ANOVA test and Coefficients table) for nomophobia and online identity.

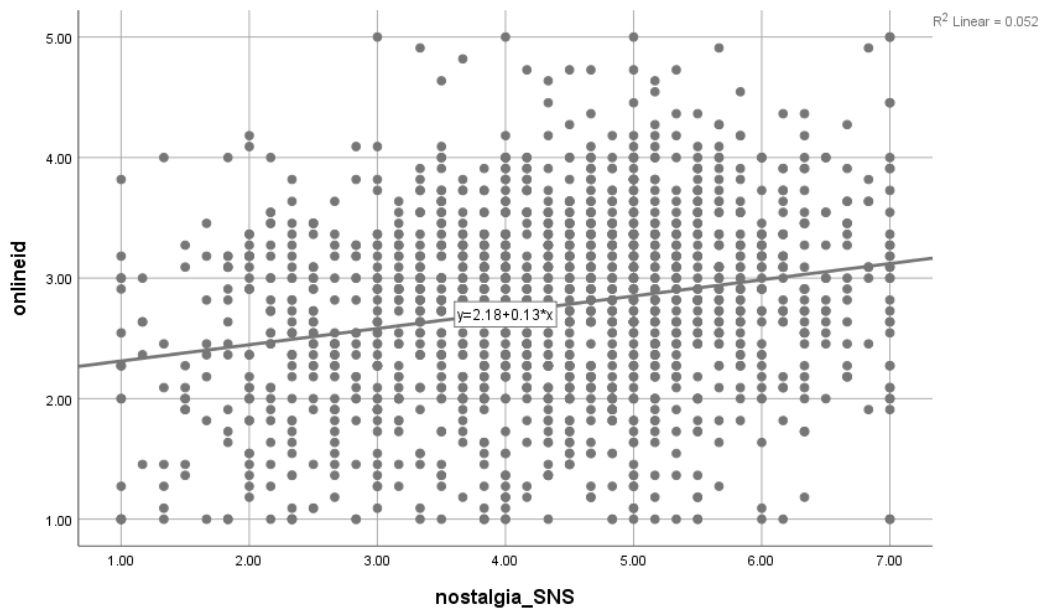
Dependent Variable	R-Square	F-test	P-value	Standardized $\beta$
Nomophobia	5%	70.19	.000	.22
Online Identity	5.2%	88.22	.000	.23

The same results were verified when looking at the slope of the straight line of the graphs below.

**Figure 2:** Scatter plot of the relationship between nostalgia and nomophobia.



**Figure 3:** Scatter plot of the relationship between nostalgia and online identity.



The line has a positive slope in both cases, which shows a positive relationship between nostalgia and nomophobia/online identity and therefore, higher levels of nostalgia translate into higher levels of nomophobia/online identity. Additionally, although the statistical model was statistically significant, it was possible to notice that in both graphs the points are quite dispersed, showing a weak connection between the variables.

In light of the above, the two first hypothesis (H1: Nostalgia predicts nomophobia; H2: Nostalgia predicts individuals' online identity) failed to be rejected.



#### **4.2.2 The link between nostalgia and nomophobia/online identity as a function of age and gender.**

To ascertain if the linear relationship between nostalgia and nomophobia/online identity, could be moderated by age and gender and, subsequently, to create a socio-demographic profile to whom nostalgia predicts mobile phone attachment and the need to be permanently online, four moderation analyses were performed. From the first analysis, which investigated whether the relationship between nostalgia and nomophobia could be moderated by age, it was possible to conclude that the model that included the interaction term was statistically significant,  $F(3,1480) = 45.70, p < .05$ . In this sense, even though age negatively predicts nomophobia ( $\beta = -.20, p = .00$ ), when controlling for nostalgia ( $\beta = .18, p = .00$ ), the interaction term between age and nostalgia was not statistically significant ( $\beta = .006, p = .82$ ). Thus, age is not a moderator variable of the link between nostalgia and nomophobia.

A second analysis was conducted to inquire whether the relationship between nostalgia and nomophobia could be moderated by gender. The statistical model was significantly different than the null model,  $F(3,1486) = 29.94, p < .05$ . However, gender is not a predictor of nomophobia ( $\beta = .07, p = .007$ ), even after controlling for nostalgia ( $\beta = .22, p = .00$ ). Additionally, the interaction term between gender and nostalgia was also not statistically significant ( $\beta = .01, p = .64$ ).

With the aim of exploring if there is an effect of nostalgia on online identity as a function of age, I used again a regression analysis to test a moderation analysis. Once again, the statistical model was statistically significant,  $F(3,1480) = 41.48, p < .05$ . Age negatively predicts online identity ( $\beta = -.17, p = .00$ ), when controlling for nostalgia ( $\beta = .19, p = .00$ ). Although, the interaction term between age and nostalgia was also not statistically significant ( $\beta = .02, p = .51$ ). Therefore, age does not moderate the link between nostalgia and online identity.

Lastly, a fourth regression analysis was performed to analyse whether gender could change the direction or the strength of the effect of nostalgia on online identity. The results showed that the model was statistically significant,  $F(3,1480) = 30.69, p < .05$  and that gender is not a predictor of nomophobia ( $\beta = .10, p = .00$ ), even after controlling for nostalgia ( $\beta = .22, p = .00$ ). Furthermore, the interaction term between gender and nostalgia was also not statistically significant ( $\beta = .004, p = .88$ ).

Concluding, age and gender do not moderate the relationship between nostalgia and individuals' attachment to phone as well as the relationship between nostalgia and the need for online presence.

**Table 4:** Moderation Models' results (ANOVA test and Coefficients Table) for nomophobia and online identity, when considering age and gender as moderators.

<b>Dependent Variable</b>	<b>Interaction</b>	<b>F-test</b>	<b>P-value</b>	<b>Standardized <math>\beta</math></b>
<b>Nomophobia</b>	<b>Nostalgia*Age</b>	45.70	.822	.00
	<b>Nostalgia*Gender</b>	29.94	.637	.01
<b>Online Identity</b>	<b>Nostalgia*Age</b>	41.80	.504	.02
	<b>Nostalgia*Gender</b>	30.69	.882	.00

Accordingly, it seems that across age and gender the pattern between nostalgia and nomophobia/online identity is stable. Therefore, the last four hypotheses formulated in Chapter 2 were rejected.

### 4.3 Discussion

#### Preliminary Analysis

From the exploratory analysis, performed to analyse the degree of association between the variables, it was possible to conclude that there is a linear relationship between online identity and nomophobia. This can be explained by the sense of disconnection with online identity that derives from the inability to access the mobile phone (Yildirim, 2014). So, those with a greater sense of online identity suffer from anxiety when away from their mobile phone. However, individuals reveal higher levels of nomophobia than online identity. This is because individuals meet their need for online presence through their mobile phones (Yildirim, 2014). Thus, without their mobile phone, individuals are unable to stay connected. In addition, as mentioned, smartphones have many features, being indispensable in people's daily lives (Yildirim & Correia, 2015). Moreover, women reveal a higher need to be constantly online. Furthermore, the fact that the older population reveals lower levels of nomophobia and online identity is in line with what was mentioned in the literature review, in which the younger population shows a greater attachment to smartphones as a way to ensure their online presence (Durak, 2018). In addition, older individuals also demonstrate low levels of nostalgia. Thus, younger individuals are more nostalgic due to the multiple changes in their

lives (Batcho, 1995). Accordingly, there are no gender differences regarding nomophobia and nostalgia.

## **Main Analysis**

**RQ1:** Does nostalgia predict nomophobia and the need for online presence?

Aligned with my initial predictions, the results of the two simple linear regressions showed that nostalgia not only predicts nomophobia but also the individuals' sense of online identity. This means that the more nostalgic individuals are, the greater their dependence on the mobile phone and the need to be always present on social platforms, which may be explained by the sense of continuity that nostalgia promotes (Routledge et al., 2008; Sedikides et al., 2008). As emphasized in the literary review, nostalgia contributes to the sense of continuity between past and present through positive perceptions of the past (Routledge et al., 2008; Sedikides et al., 2008). In this sense, nostalgic individuals may attach greater importance to the creation of memories and may recognize that not recording memories online is similar to information loss. As such, some individuals store memories on their mobile phone, which explains their attachment to their phones. Additionally, these individuals may value their online identity because they perceive it is a "self-continuity". This means that nostalgia can act as a trigger of the online record of content and memories related to one's story. Furthermore, since people can choose what they share online, the content is mostly positive, promoting the restorative function of nostalgia, able of turning negative into positive memories (Juhl et al., 2010; Routledge et al., 2008). Thus, online identity may allow to select only positive content as a form of self-enhancement or as a positive way of viewing the self (Taylor, Strutton, & Thompson, 2012).

**RQ2:** Is the link between nostalgia and nomophobia/online identity moderated by gender and age?

After understanding the relationship between nostalgia and nomophobia/online identity, it becomes crucial to understand if any socio-demographic aspects, such as age and gender, act as moderators of this link.

The results from the moderation analyses, performed to study the second research question, showed that the relationship between nostalgia and nomophobia is not moderated by age or gender. The same results were observed for the relationship between nostalgia and online

identity as a function of the same demographic variables. Therefore, the hypotheses formulated in Chapter 2 (H3-6) were rejected. Nostalgia is felt equally among men and women. Indeed, this is in line with the research conducted by Wildschut, Sedikides, Arndt, and Routledge (2006), which pointed out that there are no gender differences in nostalgia (Wildschut et al., 2006).

When I analysed the moderation by age, results showed that regardless of age (younger or older individuals), nostalgia predicts nomophobia and online identity. This result means that nostalgia does not lose its predictive strength even after controlling for age and gender. It seems that feeling nostalgia is a strong and transversal feeling, over and above some inter-individual differences. Therefore, any person who values nostalgia shows anxiety when moving away from the online identity. A possible explanation is the fear of being unable to create and share new memories, and consequently, being unable to enhance their sense of continuity. A sense of continuity is crucial to maintain self-positive beliefs and high self-esteem high (Wang et al., 2017).

## Chapter 5: Main Conclusions, Implications and Limitations

The fifth and last chapter presents the main conclusion of this dissertation, as well as their managerial implications. In addition, it also entails the limitations faced by this study and recommendations for future research.

### 5.1 Main Conclusion

This dissertation addressed the role of nostalgia in mobile phone addiction, also called nomophobia, and the individuals' need to be online as a way to stay connected, i.e., individuals' sense of online identity. In addition, the moderation effect of age and gender on the aforementioned relationship was explored in order to investigate the socio-demographic profile features of the target audience of this link. To this end, some data collected under *The Human Penguin Project* were analysed to understand whether nostalgia predicts nomophobia and online identity and whether age and gender moderate this relationship.

The results from the preliminary analyses showed that nomophobia and online identity are related. In this way, higher levels of online identity translate into higher levels of nomophobia. Indeed, smartphones allow individuals to stay connected with their online identity, meeting their need for online presence (Yildirim, 2014). In addition, they allow individuals to communicate regardless of where they are and seek information, among others (Yildirim & Correia, 2015). Thus, it is understandable that individuals reveal higher nomophobia levels than online identity. Moreover, women have a greater need to be constantly online when compared to men. However, there are no gender differences when considering nomophobia and nostalgia and so, these two variables are felt in the same way by women and men. This contradicts the UK study that argued that men are more nomophobic than women (Mail Online, 2008) and is in line with what was argued by Wildschut, Sedikides, and Arndt (2006) about the absence of gender differences considering nostalgia (Wildschut et al., 2006). Accordingly, when it comes to age, as stated by Yildirim (2014), younger generations attach great importance to digital (Yildirim, 2014). For this reason, they demonstrate higher levels of nomophobia and online identity. The same applies to nostalgia. Probably, due to various changes in their life (Batcho, 1995) (moving to college, first job, etc.), younger individuals are more nostalgic than the other age groups.

Regarding the main analysis, the findings suggested that nostalgia predicts mobile and online attachment and thus, people with more nostalgic traits are more nomophobic and with a greater sense of online identity. This relationship may be explained by the sense of continuity

between the past and the present that nostalgia promotes (Routledge et al., 2008; Sedikides et al., 2008). In fact, nostalgia facilitates self-continuity by allowing individuals to connect themselves with a desirable past (Sierra & McQuitty, 2007). By bringing out positive perceptions of the past, nostalgia enhances the sense of continuity and reinforces feelings about the meaning of life (Routledge et al., 2008). In this sense, nostalgic individuals may have a higher perception of the importance of creating memories. As such, they will have a greater attachment to the mobile phone, as they recognize that losing information, information accessible through the mobile phone, is losing memories. That is because the creation of memories is constant, and through its capabilities, smartphones allow them to be stored online, leaving little room for information loss (Mazzoni, 2019). In addition, these individuals may also value online identity more because they consider it as a way to strengthen their sense of self-continuity by creating memories and content that can enhance new nostalgic sensations.

Furthermore, people only communicate what they want, which means that there is a selection in the things that people share and so, the content is mostly positive. Moreover, as emphasized in the literary review, nostalgia has a restorative function that allows to fight negative memories by turning them into positive memories (Juhl et al., 2010; Routledge et al., 2008). This may mean that online identity allows to select only positive content things as a form of self-enhancement or a positive and desirable way of seeing the self.

It was also possible to conclude that nostalgia predicts nomophobia and online identity, regardless of age and gender, and therefore, nostalgia is transversal. Consequently, the fear of losing memories as well as the perceived importance of their creation, as a means of self-continuity, is present in both genders and in any age group. In fact, given that self-serving bias is a universal phenomenon (Wang et al., 2017), it is normal that these socio-demographic moderators have not been verified when considering this link.

## **5.2 Managerial Implications**

Since people are spending more time on social media today to stay connected, it becomes crucial to develop effective social media marketing strategies that can capture the attention of consumers and reach the interested audience. However, many brands face the challenge that although they recognize the need to be active on social media, they do not know how this can be done effectively (Hanna, Rohm, & Crittenden, 2011). In this sense, the results of this dissertation may provide useful information to digital marketers and all brands with online

presence in order to perform effective social media campaigns as a way to improve interaction with consumers and subsequently, influence their behaviour.

Considering that women have a greater need for online presence, digital marketers will be able to meet this need by developing online content that can draw the attention of individuals, leading to their engagement. Furthermore, since there is no statistical relationship between nostalgia and gender, as noted by Wildschut, Sedikides, Arndt, and Routledge (2006), marketers will be able to develop content, for women and men, both inside and outside their social networks, as in this case we do not consider nomophobia and online identity, to evoke nostalgic memories. However, they should be aware that nostalgia may have different meanings for each individual (Holak & Havlena, 1998). Moreover, whether considering online identity or nostalgia, the content should be targeted at the younger population as it reveals higher levels of both concepts.

While nostalgia predicts the need for online presence, digital marketers and brands have the opportunity to explore nostalgic concepts within social media in an effort to reach consumers on an emotional level. In fact, accordingly to Youn and Jin (2017), the evoked effects of nostalgia can be strengthened in social media because of its social component that has the ability to strengthen the sense of belonging to an online community and resonate with the sociality of nostalgic feelings (Youn & Jin, 2017). Thus, by communicating content on their social media that evokes previously experienced periods of time, brands will remind consumers of positive memories of their past, which gives life meaning and facilitates self-continuity (Routledge et al., 2008). This can be achieved by linking the brand message to nostalgic feelings, directly linked to the self, which in turn can generate positive attitudes toward a brand (Youn & Jin, 2017) and increase the consumer's connection with that brand (Gross, 2018; Friedman, 2016). As a result, this may generate leads or even promote consumers' buying act (Sierra & McQuitty, 2007; Youn & Jin, 2017). In this sense, the purchase of nostalgic products can be seen as an attempt to preserve the past (Sierra & McQuitty, 2007).

It is important to highlight that there are several ways digital marketers can use nostalgia in their social media; they can communicate products based on aesthetic elements of cultural references or new products based on old product editions (Maudet, n.d.). They can also communicate new products or concepts through past iconic elements such as celebrities, music, etc., or even ask consumers to share nostalgic, brand-related content.

Moreover, brands should also create content that contributes to the individuals' sense of continuity. In fact, brands should not only share content that appeals to nostalgic feelings but

also that can be leveraged by individuals. In this way, brands will be contributing to their online identity and, at the same time, facilitating their sense of continuity, which seems valuable for the self when constructing one's online presence.

Considering that the relationship between nostalgia and nomophobia/online identity applies regardless of gender and age and therefore, the most nostalgic individuals may have a higher perception of the importance of creating memories, brands should not just focus on a specific audience to develop their strategies. Thus, they should create content or commercialize products that imbue life with meaning and enable consumers to nurture new nostalgic feelings in the future, facilitating the continuity of the self.

In conclusion, knowing that the more nostalgic people are, the greater dependence on mobile phone and their sense of online identity, digital marketers and brands with online presence will be able to develop social media nostalgic campaigns, targeting both genders and any age groups. In this way, it will be possible to reach cognitively and emotionally current and future consumers and, consequently, facilitating their sense of self-continuity. Subsequently, the memories evoked may improve consumer attitudes toward the brand and motivate purchase intentions. In addition, brands should also develop content that contributes to individuals' online identity, but also to their sense of continuity. When considering only individuals' need for online presence, digital marketers should create content, aimed at younger women, able to generate engagement. Regarding nostalgic content, it should be present in online and offline campaigns, also aimed at the younger population, without gender restrictions.

### **5.3 Limitations and Future Research**

Despite the valuable contributions that this dissertation can provide to digital marketers and all brands with online presence, there are some limitations in the present research that should be considered when interpreting the results. One of the main limitations concerns the demographic characteristics of the sample. Although the sample is composed of a large number of participants, as previously mentioned, most of these are women. This may have affected the results that included gender issues. In this sense, future research should increase the sample, including more men, in order to investigate if the same results are verified.

Additionally, nostalgia was not evoked in the study used for the analysis and thus, the participants did not experience nostalgic feelings before answering the questions. They only responded based on feelings of nostalgia as being a trait. However, nostalgic feelings can also be a state, and therefore, if participants had experienced nostalgic feelings before answering



the questions, the answers given by them could give rise to different results from those verified. Ideally, further research should take this into account and, if possible, evoke nostalgia in order to investigate how people react to nostalgic content.

Another very relevant limitation concerns the lack of information about the topic addressed in this dissertation. However, what is a limitation is at the same time a strength: because the impact of nostalgia on people's mobile addiction and the need for online presence have not been studied to date, it was more complex to make predictions. But, from an academic point of view, this dissertation contributes to future research in this field.

The fact that I am using correlational data makes it more difficult to isolate independent variables. Thus, the prediction that nostalgia predicts nomophobia/online identity is a theoretical prediction. From my understanding, nostalgia precedes the other variables. For this reason, it makes more sense to understand the relationship between nostalgia and nomophobia/online identity than the relationship between nomophobia/online identity and nostalgia. However, this does not mean that the reversed model cannot be true (individuals' mobile phone attachment and online presence as predictors of nostalgia). Thus, additional studies, with experimental design manipulating nostalgia, should be conducted to assess the impact of nostalgia on online identity.

In addition, this study only considers age and gender as possible moderators. Nevertheless, other variables may be considered, such as cultural background, to understand if the proposed relationship can be moderated by this variable.

Moreover, this topic can also be extended to other levels, including different social media channels. In this sense, future research could explore whether nostalgic content posted on different social media platforms (e.g. Instagram, Facebook, Pinterest) predicts nomophobia and online identity in the same way, i.e., whether higher levels of nostalgia translate into higher levels of nomophobia and online identity, regardless of the social network where nostalgic is posted/shared.

Despite the limitations mentioned, the results of this dissertation provide valuable contributions to understanding the relationship between nostalgic feelings and smartphone addiction, as well as online addiction, and it will hopefully encourage further research on this topic.

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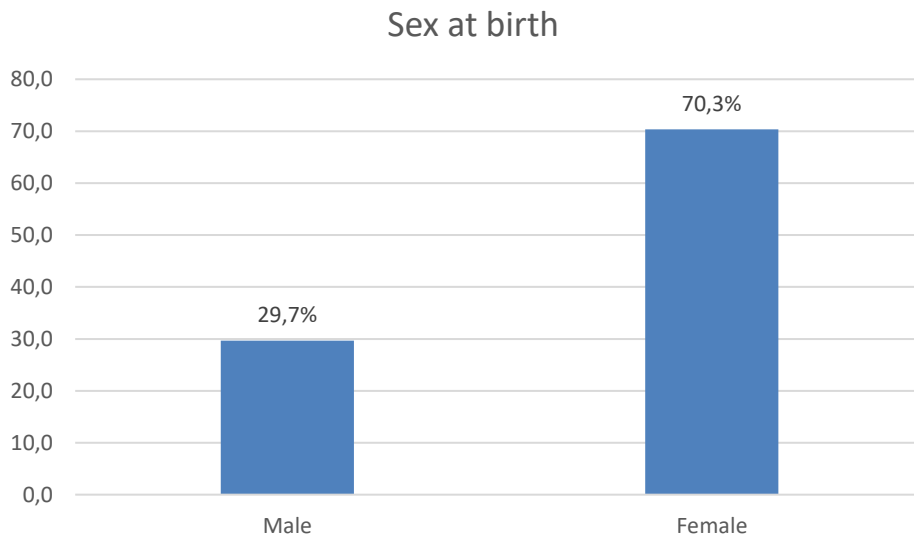


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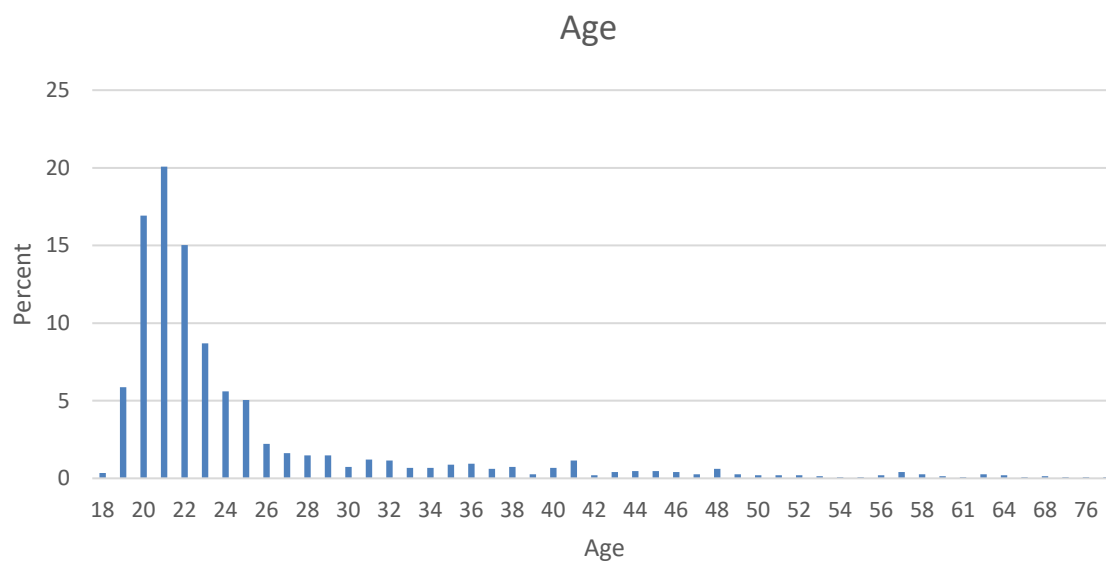
## Appendices

### Appendix 1 - Demographic information of the sample.

- Participants' gender



- Participants' age



- Participants' location

