



KADIR HAS UNIVERSITY
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**CALMER PERSUASIVE TECHNOLOGY FOR MENTAL
HEALTH AND WELL-BEING: MINDFULNESS-BASED
MOBILE APPLICATIONS**

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CALMER PERSUASIVE TECHNOLOGY FOR MENTAL HEALTH AND WELL-BEING: MINDFULNESS-BASED MOBILE APPLICATIONS

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APPROVAL

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In addition, I acknowledge that any claim of irregularity that may arise in relation to this work will result in a disciplinary action in accordance with the university legislation.

Cansu Üstünşoy

Date (11/05/23)



To My Dearest Family...

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I began my master's study in Kadir Has University's New Media Department in 2020. When I look back to those days now, I clearly see that it was a challenging time to begin an ambitious project like completing a master's degree. At the time, the Covid-19 pandemic had just begun, governments all around the world were taking measures to prevent the spreading of the virus, and universities were only able to offer online lectures. Despite all the challenges; I am so glad that I have undertaken this journey because this master's study has opened up my horizon more than I ever expected; thanks to the people who have encouraged me to do it, supported me through it and the ones I have met along these years.

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CALMER PERSUASIVE TECHNOLOGY FOR MENTAL HEALTH AND
WELL-BEING: MINDFULNESS-BASED MOBILE APPLICATIONS

ABSTRACT

Over the course of the last two decades, technology has become more distracting, more persuasive and more pervasive than ever before. We are surrounded by alarms, reminders, and notifications. As a result, we are constantly distracted, unable to focus on one task and forced to switch tasks constantly or multitask. This technological overload is contributing to the levels of mental health problems such as depression or anxiety. The aim of this thesis study is to develop an in-depth critical understanding of the root causes of technology becoming more persuasive over the years; in order to gain insight on how technologies can become calmer. In this context, we have chosen MBMAs (Mindfulness-Based Mobile Apps) as a case study. This study provides an in-depth analysis of three of the most popular MBMAs worldwide: Calm, Meditopia and Headspace via CMDA (Critical Multimodal Discourse Analysis); as well as EIs (Expert Interviews) with MBMA designers working in these firms and an additional EI with a mindfulness trainer that has no ties with these firms; to gain insight on professionals' perspectives on the issue.

Keywords: Persuasive Technology, Calm Technology, Mindfulness-Based Mobile Applications, Critical Theory of Technology

AKIL SAĞLIĞI VE ESENLIK İÇİN DAHA SAKİN İKNA TEKNOLOJİLERİ: BİLİNÇLİ FARKINDALIK TEMELLİ MOBİL UYGULAMALAR

ÖZET

Son yirmi yılda, teknoloji her zamankinden daha dikkat dağıtıcı, daha yaygın ve daha ikna edici hale geldi. Alarmlar, hatırlatıcılar ve bildirimlerle çevriliyiz. Bunlar sebebiyle sürekli dikkatimiz dağılıyor, tek bir işe odaklanmakta zorlanıyoruz ve aynı anda birden fazla iş yapmaya çalışıyoruz. Bu teknoloji bombardımanı, depresyon ve kaygı gibi ruh sağlığı sorunlarının artmasına yol açıyor. Bu tez çalışmasında, bu gözlemlerden yola çıkarak; teknolojinin yıllar içinde daha ikna edici hale gelmesinin temel nedenlerine ilişkin derinlemesine eleştirel bir anlayış geliştirmek ve teknolojinin nasıl ‘sakinleşebileceğini’ araştırmak amaçlanmıştır. Bu bağlamda, vaka çalışması olarak akıllı telefonlardaki farkındalık ve meditasyon uygulamaları (Bilinçli Farkındalık Temelli Mobil Uygulamalar) seçilmiş ve dünya çapında bu alanda en popüler üç uygulama olan Calm, Meditopia ve Headspace derinlemesine incelenmiştir. Bu mobil uygulamaların incelenmesinde yöntem olarak Eleştirel Çok Modlu Söylem Analizi kullanılmıştır. Ek olarak, bu alanda çalışan profesyonellerin de bu konudaki görüşlerini incelemek adına, bu firmalarda çalışan üç tasarımcı; ve, bu firmalarla bağı olmayan bir bilinçli farkındalık eğitmeni ile Uzman Görüşmeleri gerçekleştirilmiştir.

Anahtar Sözcükler: İkna Teknolojisi, Sakin Teknoloji, Bilinçli Farkındalık Temelli Mobil Uygulamalar, Teknolojinin Eleştirel Kuramı

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LIST OF ACRONYMS AND ABBREVIATIONS

Captology: Computers as Persuasive Technologies

CDMA: Critical Multimodal Discourse Analysis

CHI'97: Conference on Human Factors in Computing Systems 1997

DWI: Design with Intent

EIs: Expert Interviews

HCI: Human Computer Interaction

MBMAs: Mindfulness-Based Mobile Applications

1. INTRODUCTION

Persuasion is and always has been a significant part of human interaction; however now more than ever, with the unprecedented growth of new media technologies we are surrounded with continuous persuasion efforts to change our attitudes and behaviors convincing us “to spend money on one product rather than another, to vote for a particular political party, to stop smoking, to exercise more, to fight for environmental conservation, animal well-being, better schools. Or to eat an apple” (Ijsselssteijn et al. 2006, 1).

For long, the study of systematic persuasion, especially mass influence instruments has been a field of inquiry of communication and media studies. But with the exponential growth of interactive technologies, smart technologies and new media, persuasion has become closely relevant to another field of study: design. For the field of design, systematic persuasion is relatively a new concept; it has been investigated in the field since 1998 under the term of Persuasive Technology (see Fogg 1998).

Persuasive Technology, or Captology (abbreviation for Computers as Persuasive Technologies), has been defined as interactive computerized systems designed to change users' attitudes and behaviors (Berdichevsky and Neuenschwander 1999; Fogg 1998; 1999; 2003; Ijsselsteijn et al. 2006; Oinas-Kukkonen and Harjumaa 2008; 2009; Toring and Oinas-Kukkonen 2009). Put simply; any interactive product or medium that is designed to change its users' behaviors in certain usage scenarios, can be defined as Persuasive Technologies. Many new media platforms fit into these criteria that make a technology persuasive; they are computerized and interactive products; and, many of them are designed with the intention to change their users' attitudes and behaviors.

As the study fields of these two disciplines, media and design, have started to overlap more and more; the need for exchange and translation of concepts developed by these two disciplines have become more apparent. Unlike traditional persuasive media, Persuasive Technology's use of persuasion is dynamic; as opposed to the static content such as billboards, ads, tv shows, movies; they act as 'intermediaries' that users engage with and offer interactive experiences (Berdichevsky and Neuenschwander 1999). In the aspect of

persuasion; technology becomes a more powerful tool when it is interactive; adjusting and changing the interaction (IJsselssteijn et al. 2006) based on the behaviors and attitudes of the persuaded party; the user. Users' inputs, needs and context play a significant role in the act of persuasion (Fogg 1999, Fogg 2003, IJsselssteijn et al. 2006) and according to IJsselssteijn et al. (2006) this realization is what has led to the investigation of Persuasive Technology in the first place.

Although this shift from traditional technologies to interactive technologies was the main motivation for founding the field Persuasive Technology; researchers have been mostly focused on developing a practical understanding of persuasion via technology. The field has been trending since it was founded (see Hamari, Koivisto, and Pakkanen 2014; see also Orji and Moffatt 2018; Törning and Oinas-Kukkonen 2009) but the majority of the work is concerned with Persuasive Technologies' efficiency, its immediate effects or its long term effects on users. Since the founding of the field; the need for contemplation on Persuasive Technology, especially on its ethical aspects has been voiced by many scholars (see Berdichevsky and Neuenschwander 1999; Davis 2009; Fogg 2003; Gram-Hansen and Gram-Hansen 2013; Guthrie 2013; Jacobs 2020; Kight and Gram-Hansen 2019; Timmer, Kool, and van Est 2015). But only a few (see Spahn 2012; Spahn and Nickel 2012; Verbeek 2006; 2009), have provided theoretical approaches. After more than two decades, the field of Persuasive Technology still is in need of theory-based contemplation.

Some may question the need for contemplating *specifically* on persuasive design; after all, investigating the dynamics between technology and society is nothing new, it dates back to Ancient Greek (see Fransen et al. 2018). It is true that technology has always had an influence on people, and people are well aware of it for centuries; but “persuasive technology enables a much more subtle, far-reaching form of influence. [...] Often without us noticing them explicitly, they actively interfere with our lives, in tailor-made ways” (Verbeek 2009, 232).

A starting point to develop an in-depth understanding of dynamics between Persuasive Technology and society; would be looking into the discussions about modern technologies; afterall, Persuasive Technologies are modern technologies too. Many contemporary theorists (see Hand 2017; see also Agger 2011; Castells 2012; Couldry 2012; Green 2002; Hand 2017; Keightley 2013; Lash 2002; Rosa 2013; Shove, Pantzar,

and Watson 2012; Taylor 2014; Tomlinson 2007; Urry 2000; Virilio 2000; Wajcman 2008; 2014) argue that our technological advancements over the past decades have substantially transformed the way we perceive the world and our lives. Put simply, they argue that our contemporary societies have undergone a transformation because of digitisation. Our technological processes, especially communication and transportation, have become much faster compared to prior decades. In addition, the distance between physical spaces became less significant; since we can communicate with people instantaneously; or travel faster compared to older times; that is why these theorists speak of an acceleration of time and the collapse of space. But the fast-paced nature of our new technologies comes with a downside. It also causes us to experience information overload contributing to the ‘unprecedented levels of stress and depression’ (King 2016), as well as feeling the pressure of the need to be updated all the time (Couldry 2012).

This overwhelming phenomenon we are all experiencing, can also be described as the ‘vertigo of the late modernity’ (Young 2007); such a technologic environment demands our attention more and more; day by day (King 2016). Empirical studies confirm this phenomenon; the widespread use of digital media technologies require us to use a mode called ‘alternating attention’ which means multitasking and switching between devices again and again; whereas our ‘sustained and selective attention’ seems to be harmed by this mode (King 2016). This phenomenon was described from another perspective years ago by Simon (1971, 40) in these words: “ [...] in an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention.” Although written in 1971, this description captures what we are experiencing in the 2020’s very well. In such an environment ‘understanding and managing attention’ has become ‘the single most important determinant of business success’ (Davenport and Beck 2001).

The unattainable demands of our modern technologies is causing us to search for ways that can soothe, relax and focus our distracted minds (Hand 2017; King 2016). Our modern technologies ‘demand a state of continually dispersed rather than sustained attention’ (King 2016). As we get more and more distracted in a compressed state of time;

we ‘feel busy’ or ‘harried’ , ending up ‘searching for tools to manage and mitigate the stress’ (Hand 2017). As a result, simplicity movements; such as mindfulness, meditation, yoga, slow living, slow cooking etc. have been trending over the past decades (King 2016; see also Hand 2017). In essence, the more our technology seeks our attention; the more we become in need of slower lifestyles.

Neither these observations and concerns about technology becoming more and more distracting are limited to scholars; nor the trend for searching calmer and more meaningful experiences are limited to people using these technologies. In recent years, professionals working on developing these technologies have started to voice their concerns about technology publicly too. For instance, UX/UI designer Aza Raskin expressed regret about inventing infinite scroll (a page format widely used on mobile apps such as Youtube, Instagram, Facebook, Tiktok that endlessly shows new content as users scroll down) saying that he has to “forever atone for it” (see Dadich 2017: 36.35) because now it is adopted nearly by every platform and “it has literally wasted hundreds of millions of human hours.” Facebook’s UX/UI designer Justin Rosenstein has described how they wanted to spread positivity when they were designing the Like button; whereas now, many teenagers falsely depend on Likes determining their self-worth; emphasizing that such consequences were “no way” on their “radar” (Orlowski-Yang 2020: 01:22:03). Another example would be design ethicist Tristan Harris, he has left Google to co-found the Center for Humane Technology in order to raise awareness on how our online platforms are harming us (Orlowski-Yang 2020). In addition to these individual attempts, many tech giants such as Youtube, Instagram, Tiktok have started to offer pre-set reminders to users recently; so that they can limit their time on these apps and not lose themselves consuming content after content, wasting hours. In essence, everyone is concerned, and in need of a solution.

The current situation was not unexpected; many have observed that technology would get more and more ubiquitous in the coming years and there is a need for calmer interactions between technology and people; as well as a need for technologies that do not demand the attention of users as much (see Weiser and Brown 1996; see Weiser and Brown et al. 1997). This concept is being explored under the umbrella term Calm Technology. As opposed to our current technologies, the field of Calm Technology aims to design

products that convey information without demanding central attention; instead it enables users to go back-and-forth between their central attention and peripheral attention *with ease*. Since Calm Technology offers a solution for many problems we experience today; one would expect it to be a popular research field. But, even though the field of Calm Technology and Persuasive Technology were founded around the same time; Calm Technology did not gain much attention, whereas Persuasive Technology has been trending over the years. Therefore we began this thesis study with the question: How can Persuasive Technologies become *calmer*?

With this research question, we have aimed to discover the current situation and conditions concerning the development of Persuasive Technologies; and how these can be changed in order to create *calmer* human-computer interactions. At this point, readers might notice this easily: this is a very broad research question. For Persuasive Technology to become calmer, there are many factors to consider. As a result, this question brought many challenges to the table. Therefore, we have proposed secondary questions.

The first challenge this question brings to table is this: there are no practical guides to determine the degree of persuasiveness or calmness of a technology. There is no quantitative way to determine which technology is more persuasive and which technology is calmer in comparison. In essence we have Persuasive Technology literature on one side and Calm Technology literature on the other side. But our question inevitably requires us to develop an understanding of the dynamics between calmness and persuasiveness. Therefore, we propose our first secondary question: How the degree of Calmness and Persuasiveness relate to each other? Since there is no quantitative approach that can determine the degree of persuasiveness or calmness of a technology; we argue that there is a need to look into concrete examples and compare them via an in-depth qualitative analysis.

Secondly, the intentions of people developing these technologies are an important factor to consider when discussing the ways of technology becoming calmer. As mentioned earlier, Persuasive Technology's formal definition (see Berdichevsky and Neuenschwander 1999; Fogg 1998; 1999; 2003; IJsselsteijn et al. 2006; Oinas-Kukkonen and Harjumaa 2008; 2009; Tarning and Oinas-Kukkonen 2009) has emphasis on intentional design; intentional design to change users' attitudes and behaviors. Therefore

the field of Persuasive Technology is considered to be a subcategory of DWI (Design with Intent; see Lockton et al 2008). So, on the one hand we have designer intentions. On the other hand, since designers are creative workers in corporate environments; their agency, their constraints and affordances within the company are also an important factors (see Banks 2007). In essence, designers' intent to include calm features or their intent to not include unethical persuasion strategies might not fit their firms' goals: which is, in short, being profitable. Therefore we propose our second secondary question: How do designer intentions and agency play a role in technology becoming calmer or more persuasive?

Thirdly, we must note that looking into these factors alone; designer intentions, designer agency, designer constraints and affordances during the design process; are not sufficient enough to capture the dynamics that play a role in technology becoming calmer. Because after all, "many, if not all, persuasive technologies have unintended effects too" (Verbeek 2006, 2). There are many factors such as technological trends, user expectations, and the limitations of technologies at hand. So lastly, we asked: How technological evolution on a broader scale plays a role in technology becoming calmer or more persuasive?

In the context of these research questions, we have chosen MBMAs (Mindfulness-Based Mobile Applications); mobile applications that offer mindfulness training, as a case study; instead of contemplating on Persuasive Technology in a broader sense. These apps mainly offer mindfulness training via guided meditation content; but, they also offer information about these practices in article format, soothing or relaxing music that can complement unguided meditations, sleep stories or even yoga training in video formats in some cases. MBMAs, and mindfulness practices in general, offer self-help regarding attention and emotion regulation.

There are many reasons for choosing MBMAs as a study case; but, the main ones can be summarized in two points. Firstly, as we mentioned earlier, one of the reasons why there is high demand for simplicity movements such as mindfulness, is the technological overload we are currently experiencing. People are seeking self-help strategies because they are overwhelmed, and practicing mindfulness is one of them. MBMAs are just a way of mediating these practices via technology; therefore this high demand applies to MBMAs too. As a side note, mindfulness practices regarding mental wellness heightened

especially after Covid-19 pandemic (Ceci 2021; 2022; see also Wind et al. 2020). The public awareness about what mindfulness apps are; and the intent to use them have risen to 63% in the third quarter of 2022; while this ratio was only 20% percent at the beginning of 2019 (Ceci 2022). In essence, people are seeking self-help strategies like mindfulness; as life becomes more and more stressful. Since MBMAs core function is to offer improvement in attention and emotion regulation skills; if MBMAs adopt persuasive strategies that are distracting their users' attention constantly; if they are adopting persuasive strategies that are not calm, it would contradict their core function. By looking into apps that mediate mindfulness practices, we would be looking into apps that need to refer to Calm Technology principles *by-definition*.

On the other hand, inherent calmness of MBMAs does not mean they are not persuasive. In fact, quite the opposite, MBMAs are highly persuasive *by-definition* too. They are computerized products, intentionally designed to change the attitudes and behaviors of their users. The changes these technologies offer are quite substantial. They are designed to reduce depressive symptoms and stress; and to increase positive mental health traits. These are huge potentials for changes in users' attitudes and behaviors; many Persuasive Technologies do not have such ambitious long-term goals. For skeptical minds, we must note that there is consistent empirical evidence (Carissoli, Villani, and Riva 2015; Chittaro and Vianello 2016; Economides et al. 2018; Flett et al. 2019; Howells, Ivtzan, and Eiroa-Orosa 2016) showing that MBMAs do in fact create these positive changes.

In essence, MBMAs persuasiveness is inherent, as well as their calmness. As a result we hypothesized that we would encounter features that are *both calm and persuasive*, as well as features that are *highly persuasive but not calm* in MBMAs, based on our theoretical insight.

To investigate how Persuasive Technology can become calmer, in the context of MBMAs, we have adopted two methodologies. As we have noted earlier, one of the first things we needed to do was to establish a basis about how persuasiveness and calmness relate to each other. Therefore, firstly, we have conducted CMDA (Critical Multimodal Discourse Analysis) on three MBMAs (see Chapter 4) to look into concrete examples in depth. Our sample was purposive; we have chosen Calm, Meditopia and Headspace; three of the most widely known mindfulness apps world-wide. Since our focus was the

calmness and persuasiveness of these technologies throughout our study, we were focused upon the experience these technologies are assumed to offer. Critiques might argue that this type of analysis is made of our interpretations. But, in this aspect, we must note that since Persuasive Technology is a practical field, it offers specific formulations to achieve certain target behaviors in users. Therefore designer intentions are easily interpretable by looking into concrete designs. In addition, the methodology we have chosen for this in-depth analysis, CMDA; is specifically built for interpreting the intentions of the creators of creative work, in a methodical way (see Kress 2012; Kress and van Leeuwen 2001; see also Fairclough 2012; Wodak 2012). mainly because it would be mainly made of our interpretations. Therefore we need a secondary data source other than these apps themselves; to generate insight on the issue.

Secondly, we have conducted EI (Expert Interviews); with three designers who are working on these apps; and another one with a mindfulness trainer that has no ties with these firms (see Chapter 5). Our sampling was purposive. At the beginning of the study we contacted designers from Meditopia (a worldwide known MBMA developed in Turkey; where this study is being conducted) and designers from Calm and Headspace (worldwide known MBMA's developed in the USA). We hypothesized that interviewing designers from different countries would provide us insight on designer approaches from different backgrounds and cultures. EIs with designers provided us an in-depth understanding of how designers' intentions are translated into concrete designs, their constraints and affordances, as well as disagreements throughout the design process within the company. These interviews enabled us to check our observations and interpretations we have formed via CMDA. On the other hand, our interview with the mindfulness trainer has provided insight on a critical outside point of view concerning the development of these technologies; in addition, this interviewee's expertise has also shed light on possible unintended effects of these apps.

We have adopted critical theory of technology as a framework. When discussing our findings, we have provided cross-readings of critiques of technology; including theorists such as Heidegger (1962; 1966; 1977; 1995) Habermas (1985; 1987), Marcuse (2006), Baudrillard (1983), Latour (1994); to offer many insights from different critiques of technology in conjunction with persuasive design. We mainly leaned on Heideggerian

philosophy of technology amongst other theorists, because Heideggerian critique of technology has strong emphasis on the persuasiveness of technology itself. In essence, Heidegger argues that persuasiveness is inherent quality of technology. And, in the context of Persuasive Technology, adopting such a point of view makes the most sense and ensures rich discussions. On the other hand, when looking into specific features or comparing concrete examples, Heideggerian philosophy of technology can be too abstract at times (Verbeek 2005). This applies to other theorists (Baudrillard 1983; Habermas 1985; 1987; Latour 1994; Marcuse 2006) too. And it was one of the challenges of this study. In essence, these theorists rarely contemplated the pros or cons of specific technologies; their main focus in their works was the dynamics between technology and society; not the concrete technologies themselves. Therefore, we have also leaned onto design literature and contemporary theorists in our discussions; to fill the gap between theory and practice.

In the following chapter, Chapter 2 (Literature Review), we will establish an in-depth understanding of the role of Persuasive Technology in our lives. Firstly, we will look into its formal definition and the foundational works of the field. Then we will demonstrate the concept of persuasiveness in a broader technology discourse and examine inherent qualities of Persuasive Technology as opposed to other technologies. Following, we will showcase Persuasive Technologies role in the current market structures and its links with Attention Economy. In addition, we will discuss technological overload, and demonstrate mindfulness practices' and MBMAs' role in such an environment in the aspect of mental health and well-being. Then we will demonstrate the state of art of Persuasive Technology use for health and well-being and showcase ethical debates on it.

In Chapter 3 (Methodology) we will provide in-depth information on our sampling process, the reasons behind choosing these three MBMAs; Calm, Meditopia and Headspace; and the data gathering processes concerning both CMDA and EIs.

In Chapter 4 (Conducting Critical Multimodal Discourse Analysis), we will look into Calm, Meditopia and Headspace's interface architectures, providing theoretical readings. At this point, we must note that looking into CMDA data, from a critical theory of technology point of view, was a challenging task. As mentioned earlier, critiques of technology are usually abstract rather than concrete; which makes comparing concrete

apps that are very similar in nature from this point of view very hard. In essence, the different design choices observable in these apps are significant in the context of Persuasive Technology. However, the general adoption of persuasive techniques by MBMA designers and its possible causes and consequences; rather than these specific features themselves, are much more significant for a theory-based approach. As a result; CMDA conducted in this chapter offers a practical understanding of Persuasive Technology as well as an introductory understanding of a critical theory perspective of adoption of persuasive techniques in MBMAs; whereas the next chapter offers more in-depth discussions.

In Chapter 5 (Expert Interviews with Professionals Working in the Field) we will showcase links between designer intentions and concrete results of the design process we have explored in the previous chapter; as well as looking into both designer views on the issue and an outside critical view coming from a mindfulness trainer.

And finally, in Chapter 6 (Conclusion) we will provide a summary of our findings, as well as the challenges throughout the study and opportunities for future research.



2. LITERATURE REVIEW

2.1 What is Persuasive Technology?

The term Persuasive Technology (PT) was coined in 1997 at CHI'97 (Conference on Human Factors in Computing Systems 1997) in a special interest group meeting (Fogg 1998). It is an expansive field that covers various research areas including computer sciences and social sciences. It is a subtopic of DWI (Design with Intent) and studies technologies that are designed to change the attitudes of the users through persuasion techniques (Lockton, Harrison, and Stanton 2008).

B. J. Fogg (1998; 1999; 2003; 2009), who laid the groundwork of the field, has defined the term as 'interactive computing systems designed to change people's attitudes and behaviors'. Fogg's definition has been widely used by many scholars (see Berdichevsky and Neuenschwander 1999; IJsselsteijn et al. 2006; Oinas-Kukkonen 2013; Oinas-Kukkonen and Harjumaa 2008; 2009) who also laid foundational works of the field. This systematic definition is very simple but strongly formed; it has strong emphasis on *interactivity* and strong emphasis on *designer intentions*. Any interactive computing product, medium or system that is intentionally designed to change its users' behaviors in certain usage scenarios, are Persuasive Technologies. But one might wonder how this definition translates into our daily lives. What are the interactive products or mediums around us that are designed to change our behaviors and attitudes; and what is the difference between them and other technologies?

2.1.1 An in-depth look into the definition of PT

Persuasive Technology is present all around us in many different forms; a seat belt alarm in a car that warns users when they unfasten their seat belt is an example of Persuasive Technology, as well as an ATM that beeps when a credit card is forgotten in it (see Guthrie 2013). A quick look in to the apps on our smartphones can also do the trick; all of the apps that send notifications, even though they are not communicative by-design,

are Persuasive Technologies; Facebook, Instagram, Youtube, Tiktok, Pinterest, e-commerce apps, health and well-being apps, games; the list can go on. A good question that comes up at this point is: What is *not* a Persuasive Technology? In essence, the examples above are all technologies that have the *built-in intention* of changing behavior or attitude of their users *by interaction*; this requires these technologies to be computerized. In contrast to these examples, a good old-fashioned hammer, or a calculator, or a bicycle do not interact in the way Persuasive Technologies do; they do not send notifications to make sure they are used on a regular basis; they do not warn users in cases of unintended usage or they do not make recommendations. Of course this is the case, if the hammer we are talking about is not a high-tech so-called smart hammer that suggests certain grips and angles when you are using it, or if the bicycle is not smart enough to check on whether you are up for a ride.

The first key factor is interactivity. And of course, an old-fashioned hammer is interactive too; in the most literal sense, the only way to use it is to interact with it, as well as the calculator and the bicycle; but it is not a question of whether or not the product or the system is interactive, it is a question of the quality of interaction. Think of Persuasive Technologies in terms of the capacity to keep up with an exchange with users in persuasion attempts, almost like a dialogue. This is a good point to remember the initial term Fogg proposed; Captology (an abbreviation for Computers as Persuasive Technologies) because that degree of interaction quality that we are referring to usually comes from *computerized* products or systems.

The second key factor of the terms' definition is the intentionality of the attitude and behavior change. And again of course, the examples of non-persuasive technologies that we have showcased above change users' attitudes and change users' behaviors too; simply by existing. But it is obvious that the degree of designer intentions are quite different; non-persuasive technologies usually act as tools; their core purpose is not to persuade, it is to provide service; whereas Persuasive Technologies are developed based on the persuasion goal. Although it is quite tempting to get into a philosophical discussion about the inherent qualities of Persuasive Technologies, which would benefit this study immensely, we need to put away such discussions for now in order to build a practical

understanding of the field; however we will get into such discussions in latter subsections (see Subsection 2.2; see also Redström 2008).

As mentioned earlier in the introduction chapter briefly, use of persuasion in Persuasive Technology differs from traditional person-to-person persuasion or the use of persuasion in traditional media. Berdichevsky and Neuenschwander (1999) describe this difference as ‘acting as intermediaries’ between persuaders and persuaded parties. Traditional media like television, radio, newspapers or magazines have been using persuasion for a long time to inspire action; however in those mediums we have to change our context to perform a behavior; whereas *in* interactive media we can take actions instantly with and through our devices (Fogg 2009). And again, as mentioned earlier, in our brief introduction chapter, this shift is what has led to the investigation of the field (IJsselssteijn et al. 2006).

Now, in the 2020s, more than two decades have passed over the founding of the field; we live in a world of PT. As mentioned earlier, the majority of apps on our smartphones are PTs. At this point, it would be beneficial to briefly look into MBMAs (Mindfulness Based Mobile Applications), our case study in this thesis, from a PT perspective too. MBMAs can be described as interactive mobile applications that offer mindfulness training sessions, mostly consisting of guided-meditation content, as well as breathing techniques, music and even stories (see Flett et al. 2019; see also Cavanagh et al. 2014, Mani et al. 2015, Plaza et al. 2013). They fit into the formal definition of PT very well; they are *interactive computerized* products; they are *designed with strong intentions* to change their users’ attitudes and behaviors. The empirical data shows that they truly create substantial changes in their users; we will get into this more in-depth in later subsections (see Subsection 2.5 The Rising Need to Calm Ourselves) however some notable studies (see Bostock et al. 2018; Chittaro and Vianello 2016; Flett et al. 2019; Howells et al. 2016) suggest that they are very effective at reducing depressive symptoms, anxiety; as well as improvement of positive mental health traits.

On the other hand, the effects of the technology on human behavior is not the only factor to consider for a technology to be considered persuasive. Earlier, we have mentioned how a hammer changes our behaviors and does not fit the criteria of PT; we must note that in addition to behavior and attitude change, the technology must be designed with the

purpose and intention, and the design intent must be determining the possible outcomes and changes in attitude and behavior (Fogg 2003). But as well as design intention, the persuasion event and strategy (see Oinas-Kukkonen 2013; Oinas-Kukkonen and Harjumaa 2009) are also critical for analyzing the persuasion context of PT; as well as the design processes of PT. Therefore in the next subsection, we will showcase these aspects more in-depth, as well as demonstrate how MBMAs fit into these criteria.

2.1.2 Macrosuasion vs. microsuation

There are two levels of persuasion strategies for PT; macrosuasion level and microsuation level (Fogg 2003). Macrosuasion level covers the overall goal, or intent of a system; if a technology is persuasive on macrosuasive level it means that it has a clear overall goal to achieve, such as certain target behaviors, attitudes and habits. A good mental exercise that can be done to gain insight on interactive technologies' macrosuasion goals, would be to think in terms of the voluntary participation of the target users. Ask yourself whether the persuasion dialogue starts with the users' conscious attempt to change certain attitudes, behaviors, habits and whether the user is voluntarily participating in the persuasion process. For instance, health and well-being apps, which are the focus of this thesis study, are usually persuasive at macrosuasion levels. Generally speaking, a fitness app tries to persuade users to exercise more or regularly, a smoking cessation app tries to persuade users to quit smoking, or a MBMA in our case is designed to persuade users to practice mindfulness regularly or change their attitudes towards stress. The overall goal is getting healthier, and in most cases the user wants to be 'persuaded'; they are motivated to initiate the change; behavioral goals of these apps are obvious; and, they are downloaded because of these obvious goals.

On the other hand, not all interactive technologies are necessarily persuasive at this level; in contrast to the previous examples, email platforms or image manipulation softwares, for instance, do not have overall persuasion goals (Fogg 2003). A more up-to-date example would be video-on-demand platforms. Think of Youtube for a second, perhaps it is stating the obvious but it is fair to assume no-one really downloads and uses Youtube with an intention to watch more videos and to build a habit out of it; but it does not mean such a platform does not change behaviors and habits. According to Fogg (2003),

although such platforms do not have an overall persuasion goal they might still use ‘smaller persuasive elements’. These smaller elements cover icons, interaction patterns, dialogue boxes or reward strategies to achieve smaller goals such as increasing user interaction; and they are called microsuation elements (Fogg 2003).

At this point we must note that since this study’s focus is on MBMAs, both persuasion on macrosuation level and also the granular microsusive techniques used in these apps are in the interest of this work; their overall goal is to persuade people into practicing mindfulness regularly but they also adopt smaller persuasive strategies such as notifications, reminders, recommendations, gamification elements, as well as self-surveillance strategies like providing progress charts. Which brings us to another aspect of PT that we want to draw attention in this study; such strategies can not be adopted by human persuaders. Persuasion through PT is quite different from person-to-person persuasion events; PTs have a number of significant advantages over human persuaders (see Fogg 2003).

2.1.3 Advantages of PT over person-to-person persuasion

Firstly, PTs are much more persistent (Fogg 2003) compared to human persuaders as well as the human persuaded party; sometimes irritatingly (IJsselssteijn et al. 2006); in the sense that they do not get tired or bored. The second advantage PTs have over human persuaders is allowing anonymity (Fogg 2003); which is useful when sensitive issues are at play especially around the issues of health and well-being (IJsselssteijn et al. 2006). Thirdly, PTs access huge amounts of relevant data unlike a human persuader (Fogg 2003); which makes it easier to keep up with the behavioral change phases (Kraft, Schjelderup-Lund, and Brendryen 2007). The list could go on; another advantage of PTs’ is employing different modality types simultaneously (Fogg 2003) text, audio, video, tactile feedback etc. They are also ubiquitous (Fogg 2003) and embedded in our everyday lives; they have access to areas where human persuaders can not physically go or would not be welcomed such as a bedroom or bathroom; which makes providing feedback at appropriate places easier. And lastly, PTs can be easily distributed to large numbers of people at the same time (Fogg 2003), an app can have millions of users, whereas a human persuader is very unlikely to have that kind of influential reach.

One might wonder how these advantages translate into our daily lives. A quick mental exercise would clear the air. Since we are looking into MBMAs (Mindfulness-Based Mobile Applications) in this study; we can compare a hypothetical MBMA with face-to-face mindfulness training to see its advantages over human-persuaders. Let's look into the first advantage; persistence. Assume you enrolled in a mindfulness course or yoga course, if you drop out, how many times do you think people would check-in? A few times maybe, but if you download an app, an app programmed to notify you again and again, will not give-up even if you do not open it for months. The second advantage, anonymity, is especially useful in the case of MBMAs. By a quick look into mindfulness apps one can easily observe they offer guided meditations around very sensitive topics; such as stress, anxiety, loneliness, grief... One can easily be more comfortable to work on these by themselves without exposing themselves to others in face-to-face mindfulness training. Let's look into the third advantage; having access to relevant data. It would take an immense amount of dedication and time for a face-to-face mindfulness trainer to track how many minutes you have dedicated to meditation in a day and your progress over time; apps on the other hand have no trouble generating this data. Another advantage is distribution scale; how many people a mindfulness trainer can train in a session? Is it twenty, or maybe fifty? An uploaded guided meditation can be listened to by millions. These do not mean, MBMAs offer a better experience; it just mean they have a higher chance in successful persuasion. The list can go on, but to keep it short we will return to our literature review.

Although it seems like PTs do in fact have the advantageous hand, in theory; there were doubts about whether PT's are as functional and as effective as assumed (see IJsselssteijn et al. 2006) and there were concerns about their effectiveness in long-term adoption (see Halko and Kientz 2010) in the earlier stages of research. However, PTs have been studied for over two decades now. Systematic literature reviews (see Hamari, Koivisto, and Pakkanen 2014; Orji and Moffatt 2018; Torning and Oinas-Kukkonen 2009) show that; there has been a growing interest in the topic and more importantly, the data shows that these technologies do in fact, persuade. 92.6% of PT studies report positive or partially positive results (Hamari, Koivisto, and Pakkanen 2014). And this data seems to be consistent; another recent review (see Orji and Moffatt 2018) specifically investigating

PT use for health and well-being also showed that 92% of PT for health and well-being studies report fully or partially positive outcomes too.

In addition to empirical data, worldwide statistics reveal a lot about the nature of PT too. We spend massive amounts of time on interactive mediums; internet, mobile phones and especially apps. In 2021 the average internet user spent 6 hours and 54 minutes online, each day; which adds up to more than 100 days a year; mobile devices have over 53 percent portion as the access device to internet; and a huge portion, 92%, of this time is actually spent on apps; whereas only 8% has been spent on web browsers (Kemp 2021). Of course, unlike the formal studies, statistical data does not show how effective these technologies are at achieving their macrosuasive persuasion goals; but they might be interpreted as a sign of how persuasive PTs can be when it comes to engaging users, in other words, how effective their microsasive strategies are.

Based on these data, it is fair to say that we are surrounded with interactive technologies that are built for, and highly capable of changing behaviors; which, of course, raises ethical concerns. One might wonder whether ethical contemplation on PT, specifically on PT, is actually necessary. Perhaps technology sociologist Latour's ideas on the issue can demonstrate the significance of such contemplation.

When discussing cars' automatic seat belt alarms, a mundane technology that most do not pay conscious attention to, Latour (1994) argues that they are 'prescriptions' for behavior, and further argues that this quality makes them highly embedded in moral life. When Latour made this argument in 1994; the field of PT had not been founded yet; but seat belt alarms are a great example of PT; they are designed with strong intentions to change behaviors, so without knowing Latour is actually discussing PT. If something as simple as a seat belt alarm is 'prescribing' us; think of how many times we are 'prescribed' by technology in our daily routines. More complex forms of PT, and, MBMAs are a great example of this complexity, definitely require ethical contemplation.

2.1.4 Ethics of Persuasive Technology

On the one hand advocates of PT usually point out to the positive potential of persuasive design to create a better world; by helping to achieve moral goals like health, safety,

sustainability; critiques on the other hand, argue that ‘moralizing’ technology raises other ethical concerns like ‘technological paternalism’ (Spahn 2012); since persuasive technology does not convince but persuade.

Ethics of PT is not an unpopular concern (see Berdichevsky and Neuenschwander 1999; Davis 2009; Gram-Hansen and Gram-Hansen 2013; Jacobs 2020; Kight and Gram-Hansen 2019; Spahn 2012; Spahn and Nickel 2012; Timmer, Kool, and van Est 2015; Verbeek 2006; 2009). Fogg (see 2003), who laid the groundwork of the field PT, was also originally concerned about the ethical implications; and gave many practical examples discussing ethical aspects in his introductory book. Berdichevsky and Neuenschwander (1999) were the first scholars to offer an ethical guideline: “The creators of persuasive technology should never seek to persuade anyone of something they themselves would not consent to be persuaded of.” On the other hand, PT like any other technology might have unintended effects on its users too (Verbeek 2009). It is not always easy for designers, even for ‘the most conscientious designers’, to consider the implications of a technology (Guthrie 2013), since technologies that we are dealing with have become ubiquitous in a way that designers are also oblivious to the patterns too (Guthrie 2013; see also Verbeek 2006; 2009). In addition, technology does not only affect its users; even if we do not use a specific technology, if it is adopted highly in our society then we would still face the consequences. Therefore it is also important to contemplate on other stakeholders other than the users; since technology is mediated by users too (see Fogg 2003; see also Verbeek 2006).

There is also a need for theory based approaches to contemplate on the ethics of PT. They have been limited in number so far. For instance, Spahn and Nickel have proposed a theoretical approach (see Spahn 2012; see also Spahn and Nickel 2012); discussing the issue from an Habermasian point of view and arguing that applying discourse ethics would be contributinal to the field. Technology philosopher Verbeek (2006) has offered Mediation Theory as a framework; juxtaposing Ihde’s phenomenological work and Latour’s Actor Network-Theory. In this study on the other hand, we would contemplate on PT from a critical theory of technology point of view; mainly leaning on Heideggerian philosophy of technology (see Heidegger 1977 [1954]; 1966 [1959]; see also 1962 [1927]; 1995 [1983]). This choice has several reasons behind it.

Firstly, because Heidegger's views have strong emphasis on how technologies themselves change people's perceptions of existence; simply by existing. In essence Heidegger argues that technology's essence is persuasion itself. This perspective alone makes a Heideggerian point of view very interesting in the context of PT. Because, even though all technologies can be examined from such a perspective; in the context PT we can also speak of an intentionality. PTs change people's attitudes and behaviors not only by-nature but also by-design. Such a framework would enable us to both discuss intentional and unintentional effects of PTs.

Secondly, a phenomenological perspective would be highly beneficial to start a scholarly discussion on how PT is fundamentally changing our experience of life. The field is crowded with studies that are concerned with providing practical tools and methodologies for designers to ethically design PT (Berdichevsky and Neuenschwander 1999; Davis 2009; Fogg 2003; Gram-Hansen and Gram-Hansen 2013; Jacobs 2020; Kight and Gram-Hansen 2019 Timmer, Kool, and van Est 2015); even the theory-based approaches follow a similar path too. For instance, Spahn's Habermasian approach (see Spahn 2012; Spahn and Nickel 2012) also consists of guidelines for design process of ethical PT. However there is no significant or widely-adopted theoretical approach to assess an in-depth understanding of our current situation as opposed to providing design methodologies.

In my opinion the professionals working in the technology sector are way ahead of scholars in this aspect. The societal implications of PT are very openly discussed by people who are developing it. For instance, design ethicist Tristan Harris's work (see Harris 2018, see Orłowski-Yang 2020) such as podcasts, or TEDX talks; as well as documentaries like Social Dilemma (Orłowski-Yang 2020) or Abstract Art of Design (see Dadich 2017) capture the core issues of ethics of PT much better than the scholarly work. In essence they demonstrate how PT techniques are abused for increasing user engagement by tech giants like Facebook, Instagram, Snapchat, TikTok for profit. This is the other side of the coin; PT has the potential to be used and abused for profit without good intentions in mind; as well as it has the potential to achieve human-well-being, health, safety, and raising awareness on environmental issues. Of course, there are many critiques of technology concerning the current situation; but they do not use the terminology and language of PT; which creates a gap between these fields because, in

essence, PT is at the core of the many issues we are facing. To develop an in-depth critical view, firstly, we must establish the state of art of the works concerning technology from such a point of view. Therefore in the next subsection, we will look into the issue from a broader perspective; and look into the concept of ‘persuasiveness’ in a more general technology discourse.

2.2 Persuasiveness in General Technology Discourse

In the previous subsection, we have provided the formal definition of PT and explained the differential qualities of Persuasive Technology and the essentials that make it differ from other technologies. But, understanding the discourse of ‘persuasiveness’ in a more general technology discourse is essential for our study. Many thinkers from different disciplines seem to agree upon the idea that technologies have substantial influence on people and on societies in some way or another (Redström 2008). However, we must be cautious to not reduce the field of Persuasive Technology to this level of influence. Therefore, we would provide a guide to show how Persuasive Technology relates to a more general design discourse and how it differs from it in this subsection.

Even though persuasion has been examined by scholars for at least 2,000 years there is no consensus on its definition; in the field of PT, it is defined as ‘an attempt to change attitudes or behaviors or both’ for practical purposes (Fogg 2003). In the context of PT, this ‘attempt’ originates from people who develop the technology. On the other hand, if we take a step back from PT; and look into a more general design and technology discourse we can see that there is consensus that technology and design shape the way we think, the way we live and the way we experience life (see Redström 2008), *even without these intentional attempts* that come from people developing it.

Shaping the attitudes and behaviors of users definitely would not be a new narrative for people with neither design backgrounds, nor for the ones who carry out theoretical work about technology. Even though *only* ‘interactive systems or computers’ that are ‘intentionally designed to persuade’, count as Persuasive Technologies (see Fogg 1998; 1999; 2003; see also Berdichevsky and Neuenschwander 1999, IJsselsteijn et al. 2006), it is easy to observe the most analogous technologies are in fact persuasive to some degree;

in the sense that they shape, change or guide users in some way or another. Think of an analogue phone for instance, with the traditional copper wire and the plain old telephone system. It does not quite fall under the category of Persuasive Technology; because it is not designed with the intent to achieve an overall persuasion goal; and it is not computerized. However, it is capable of, and already has changed the attitudes and behaviors of users, has it not? But it is not categorized under the term PT.

This is an issue about the formal definition of PT (see Fogg 1998; 1999; 2003; see also Berdichevsky and Neuenschwander 1999, IJsselsteijn et al. 2006); even though a technology changes people, to such a degree that it changes not only individuals but also societies and even human experience, if the change that it creates is not intentional, or they are not interactive in the sense that computers are, they are not categorized under the term Persuasive Technology. In essence, a smartphone fits the description of PT, whereas an analogue phone does not. Which brings us to the question: Why is it that we categorize smartphones as Persuasive Technologies and we do not categorize their ancestors as such? The logic of thought is simple; if changing one's attitudes and behaviors is persuasion, then are not all technologies persuasive?

2.2.1 'Persuasiveness' in design, media studies, sociology and philosophy

Looking into discourse of 'persuasiveness' in technology and design theory is a good point to start. One of the notable theorists arguing design's influence on people is design theorist Buchanan (1985), famously arguing that design can be understood as rhetoric:

“ [...] designers have directly influenced the actions of individuals and communities, changed attitudes and values, and shaped society in surprisingly fundamental ways. This is an avenue of *persuasion* [emphasis added] not previously recognized.” (Buchanan 1985, 6)

Another one is, design theorist Dunne (1999), arguing that the more time we spend with technology the more we are enslaved to 'conceptual models, values, and systems of thought the machines embody'.

A similar type of logic of thought, parallel to these ideas, can be found outside the field of design. Technology sociologist Akrich (1992) argues that designers 'inscribe their vision of the world' to users inevitably. Whereas critical theorist Marcuse goes as far as arguing

(2006, 14) that: “The products indoctrinate and manipulate.” Technology philosophers who were highly influenced by Heidegger (Fransen et al. 2018) such as Ihde (see 1979) and Verbeek (see 2005; 2006; 2009) share similar views. Verbeek (2009; 235) argues that “Taming is still alive and well, only it takes place with the aid of technology”. Media theorist McLuhan (1967) is widely-known for his work titled *The Medium is the Message*; implying the mere existence of technologies themselves have a greater effect on human existence, than how we actually use them. The list can go on. Technology's powerful influence on people's perceptions is a recurring idea that can be tracked in different fields.

Normally, it would be important to hold a critical view on these ideas; one of the most obvious critique is that all these thinkers, whether they are from philosophy, sociology or media studies, do not have first hand experience with developing technology; which can be problematic to some degree. However in this case, we have showcased corresponding alternatives in design theory too (Buchanan 1985; Dunne 1999).

At this point, readers must take into account that taking the concept of the influence of technology on people, as equivalent persuasion, is *too big of a jump* in our context; it must be dealt with caution. As a reminder, only one of the theorists we have looked into so far (see Buchanan 1985) directly used the word ‘persuasion’; and needless to say, he was referring to the capacity of influence of technology not the direct persuasion attempts that we speak of in the context of PT. These theorists, both from the design field and others, demonstrate how technology and design have an inherent capacity to influence people's perception of the world; however, it is important to note that persuasiveness of PT should not be reduced to the capacity of influence. Persuasive Technologies have inherent qualities that make them more ‘persuasive’ than other designs. It is important to note that this not an argument that can only be observed in the design field. Technology philosopher Verbeek explains in these words:

“Things have always had an influence on people: from ditches that make areas inaccessible to speed bumps that make motorists slow down when it is safer to do so. But ambient intelligence and persuasive technology enable a much more subtle, far-reaching form of influence. They occupy a radically new position in the realm of human experience. While ‘classical’ technologies are encountered from a configuration of ‘using’ technology, these technologies merge with our environment.” (Verbeek 2009, 232)

He explains further:

“On the one hand, these technologies [Ambient Intelligence and Persuasive Technology] can only exert their influence within the context of the practices in which people use them and fit these technologies into their existences. [...] On the other hand, these technologies are always designed, the design always forming a reflection of human intentions. This combination of people’s intentions and the ‘material intentionality’ of technologies determines the technologically mediated intentionality that ultimately comes about, and that consequently has a hybrid character: partly human and partly nonhuman. The subjects who act and take decisions, are never purely human but are a complex amalgam of human and technology” (Verbeek 2009, 235)

2.2.2 A Heideggerian view of ‘persuasiveness’ of technology

In essence, when speaking of the persuasiveness of technologies in a more general discourse; we are speaking of the influence of technology on people. In this aspect, Heidegger is, without doubt, one of the most influential thinkers that come to mind; his work has been a source of inspiration for the next generation of scholars such as Ihde (see 1979) and Verbeek (see 2005) studying philosophy of technology (Fransen et al. 2018).

According to Heidegger (see 1977) the capacity to change our perceptions of the world is actually *the essence of technology*. In his highly cited essay *The Question Concerning Technology* (1977 [1954]); he argues that every technology; either ancient or modern, industrial or craft-made, substantially changes our perceptions of life in some way or another; and therefore they are never neutral. In fact, he argues that regarding technology “as something neutral; for this conception of it, to which today we particularly like to do homage, makes us utterly blind to the essence of technology” itself (Heidegger 1977 [1954], 1). And, he comes to the conclusion that the essence of technology is ‘not merely technological’. Heidegger (1977 [1954]) argues that every technology is revealing some form of truth, whereas simultaneously concealing the other forms of truth; and, this is the essence of technology, not just a quality of it. One might wonder how these concepts; revealing and concealing translate into our everyday lives. For a quick mental exercise, we can go back to our initial example; the analogue telephone. Earlier, we have mentioned that an analogue telephone would not be categorized as a Persuasive Technology, but it does not mean it is not ‘persuasive’. The invention of the telephone substantially changed

the experience of millions; the experience of being away from something or someone, the experience of distance. And actually, at this point in time it is fair to say that it changed it for good. A quick Google search shows that earliest commercial forms of telephone were marketed as “You can telephone all over the world” and, indeed, we can.

In Heideggerian terms, the invention of the telephone and the telephone itself revealed the world in such a way that spatial distance meant something different compared to what it was before. A Heideggerian reading of the telephone would suggest that it *reveals* the world *in a way* that distance becomes less significant; it becomes less significant compared to older times when it was not as easy as nowadays, to reach someone that is on the other side of the world. Distance becomes less significant when transferring information; or it may as well be when transferring affection. One could even argue that the telephone *reveals* a loved-one’s moving away, not nearly as devastating as before... The list can go on.

The telephone was an example that we contemplated on earlier; that is why we have turned back to it. To be clear, Heidegger himself does not mention the telephone in *The Question Concerning Technology* (1977 [1954]); but he speaks of similar technologies in the same manner, in his other works. Here is an example:

“*All distances in time and space are shrinking.* Man now reaches overnight, by plane, places which formerly took weeks and months of travel. He now receives instant information, by radio, of events which he formerly learned about only years later, if at all. The germination and growth of plants, which remained hidden through-out the seasons, is now exhibited publicly in a minute, on film. Distant sites of the most ancient cultures are shown on film as if they stood this very moment amidst today's street traffic. Moreover, the film attests to what it shows by presenting also the camera and its operators at work. The peak of this abolition of every possibility of remoteness is reached by television, which will soon pervade and dominate the whole machinery of communication.” (Heidegger 1971 [1959], 163)

But he quickly adds:

“Man puts the longest distances, behind him in the shortest time. He puts the greatest distances behind himself and thus puts everything before himself at the shortest range. Yet the frantic abolition of all distances brings no nearness; for nearness does not consist in shortness of distance.” (Heidegger 1971 [1959], 163)

In his last sentence we see his critical stance; he argues that the speed enabled by these technologies, the ability to travel, or communicate, faster; does not necessarily create nearness. When he says nearness, he is not speaking of physical nearness but he is speaking of a nearness which is much more experiential; we see that he is mostly concerned about our subjective experiences. And generally speaking, he is critical of modern technologies in this aspect, he often argues that modern technologies prevent one's authentic-being. Here is another example:

“Often they are still more homeless than those who have been driven from their homeland. Hourly and daily they are chained to radio and television. Week after week the movies carry them off into uncommon, but often merely common, realms of the imagination, and give the illusion of a world that is no world. Picture magazines are everywhere available. All that with which modern techniques of communication stimulate, assail, and drive man—all that is already much closer than the sky over the earth, closer than the change from night to day, closer than the conventions and customs of his village, than the tradition of his native world.”
(Heidegger 1966 [1959], 48)

When we look into this paragraph, we see that Heidegger is much more critical in this example, compared to the earlier one. He describes (1966 [1959]) people as ‘chained’ to radio and television as if they were slaves or prisoners of these technologies; he describes movies as an ‘illusion of world that is no world’ implying that it is an inauthentic form of unconcealment; he describes picture magazines as ‘everywhere’ which highlight the the sense of surroundedness with communication technologies. In essence he is pointing out issues that come with advanced technologies; technology dependency, escapism, ubiquity. There is a reason why Heidegger is very critical of these aspects of modern technologies. So far we have only introduced two of his essential concepts of his philosophy of technology; revealing and concealing. And I have quickly dug into the examples to clear these concepts out. However, there is one more essential concept we need to look into in our context.

When he introduces the concepts of revealing and concealing in *The Question Concerning Technology*, Heidegger (1977 [1954]) argues that there was a time when technologies’ revealing mode was one that is much more in peace with nature. Back then, technologies were revealing in the sense of *poiésis*; in the sense of bringing-forth and their becoming was as natural as ‘the bursting of a blossom into bloom’ (1977 [1954], 5). But, very

quickly, he retrieves these poetic descriptions and argues that modern technologies are not revealing in this sense. He argues that they are inherently different from older technologies and he argues that our technologies now are unfolding in the sense of challenging-forth “which puts to nature the unreasonable demand that it supply energy that can be extracted and stored as such” (1977 [1954], 6). According to him, although the essence of modern technologies is still revealing; it is a different mode of revealing; a much more dangerous one, which is: enframing.

As a result of technology revealing the world in the mode of enframing, we start to see everything in terms of ‘standing-reserve’ (see 1977 [1954]). We simply perceive everything as raw material, we start to think about everything in terms of profitability; this mode eventually makes us perceive nature, people and even ourselves as means-to-ends. In his later work *Memorial Address* (1966 [1959]) –which can be considered an addendum to *The Question Concerning Technology* (Verbeek 2005)– we see that he refers to this thinking mode as *calculative thinking*.

Put simply, calculative thinking is goal-oriented; it lacks depth and contemplation. Heidegger argues that thinking dominantly in the mode of calculative thinking takes something away from our authentic experience of life; which is very interestingly, *meditative thinking*.

“Calculative thinking computes. It computes ever new, ever more promising and at the same time more economical possibilities. Calculative thinking races from one prospect to the next. Calculative thinking never stops, never collects itself. Calculative thinking is *not meditative thinking* [emphasis added], not thinking which contemplates the meaning which reigns in everything that is [...] meditative thinking does not just happen by itself any more than does calculative thinking. At times it requires a greater effort. It demands more practice. It is in need of even more delicate care than any other genuine craft. [...]Yet anyone can follow the path of meditative thinking in his own manner and within his own limits. Why? Because man is a thinking, that is, a meditating being. Thus meditative thinking need by no means be ‘high-flown’.” (Heidegger 1966 [1959], 46-47)

Based on these two concepts; one can easily see why MBMAs are a very interesting case for Heideggerian philosophy; put simply, because they have conflicting qualities. When looking into MBMAs, on the one hand we are looking into PT which is representative of calculative thinking; since it is purposefully designed to change attitudes and behaviors.

PT is very goal-oriented; therefore Heideggerian philosophy of technology would suggest that PT is likely a byproduct of enframing mode of revealing. On the other hand, we are looking into the mediation of mindfulness practices, which is supposed to enhance meditative thinking; since they encourage a more contemplative and reflective mode of thinking; but modern technologies are not supposed to do that. As a result, such a study case is bound to yield rich discussions on both ends.

Readers might have noticed this, the Heideggerian concepts we have discovered so far; revealing and concealing, as well as enframing, does not directly correspond to the concept of ‘persuasion’ we are speaking of in the context of PT. In the PT field, we are speaking of intentional persuasion attempts; originating from designers; whereas Heidegger is speaking of technologies’ influence on people in a much more general sense. In addition he does not use the word ‘persuasiveness’, or ‘persuasion’, or anything similar in that nature. In essence we are speaking of different concepts of ‘persuasion’ in each context; and one can even argue that these are different levels of, ‘persuasion’. But, the thing is: these two conceptions of persuasion are not contradictory, PT is persuasive in the sense Heidegger speaks of, *in addition* to its intentional persuasiveness. PT’s conception of persuasion only covers the intentional changes technology creates; whereas the Heideggerian approach also enables us to speak of changes occurring in people because of technology use that designers did not intend to.

In addition, when we look into MBMAs; we are essentially looking into an example from the mobile world; which seems to be representative of a heightened version of what Heidegger is very critical of. Remember how Heidegger describes people chained to radio and television, movies as an illusion of a world that is no world. We have emphasized that his criticism points out issues such as technology dependency, escapism, ubiquity.

At this point, we must note that the technologies Heidegger describes and critical of are much *quieter*; in the sense that they are not as interactive as the technologies of today. All the technologies he is critical of; the radio, the tv, the movies or the magazines *wait there* to be used; whereas a smartphone, an app, or even a seat belt *calls out* to be used. They send alarms, notifications, recommendations. An MBMA, calls out to be used too; these just because they mediate mindfulness, does not mean these platforms do not take advantage of distracting techniques. In essence, PT is much more pervasive than the

technologies Heidegger speaks of. The constant alarms and bells, reminders, notifications, recommendations surround us; they are literally everywhere, ‘prescribing’ us (Latour 1994) what to do. If it is true that people were chained to radio and television in a way that threatened their authentic being, this leaves us with the question: What are the technologies of the 21st century doing to us? What does PT impose upon us? Although Heidegger’s concepts we have introduced so far, have built us a strong foundation to have our discussions; we must note that Heidegger died in 1977, and did not even have a glimpse of the mobile world we live in right now. At this point, looking into contemporary theorists’ ideas on the issue can take us one step further in our discussions.

2.2.3 Contemporary views on ‘persuasiveness’ of technology

So far we have looked into theorist arguments on the general ‘persuasiveness’ of technology; whether modern or not. On the other hand when speaking of PT, we are speaking of computerized products; therefore we are speaking of digitisation. So let’s have a deeper look into what contemporary theorists argue about digital technologies.

In a nutshell, it is fair to say that with digitisation of our contemporary societies, our technological processes; especially communication and transportation; have become much faster compared to how they were ten years ago; let alone comparing them to how they were a hundred years ago. As a result our expectations and perceptions of time have changed with these technologies as well (see Hand 2017). With these technological advancements, our relations with time have been restructured; time has become ‘compressed’ and ‘de-sequenced’ (Castells 2012). Our daily experience of ‘time is speeding up’ and as a result this acceleration leaves ‘no time for reflection’ (Lash 2002); technology ‘oozes’ every aspect of our lives ‘driving out downtime’ (Agger 2011).

Some argue that this is a result of our social structures (see Rosa 2013); whereas some emphasize technologies’ role in these structural changes of our sociality (see Virilio 2000). This debate is out of our context, but one thing is for sure: The digitisation of our contemporary societies has enabled a ‘porosity between public and private domains in the experience of mediated time’ (Keightley 2013). For instance, work life and social life are not as distinct as before. The temporal boundaries between these different areas of our

lives have diminished and they become more intricate because of the technologies we have today which created 'mobile time' (Green 2002).

There are many designations to describe the new temporality we are now living in; 'instantaneous time' (Urry 2000), 'timeless time' (Castells 2010), 'iTime' (Agger 2011) the list can go on. In essence, all these designations indicate an acceleration of time. Acceleration is a metaphor; describing the intensification of our abilities and expectations of communication and transportation speed. But, it also hints at our loss of control over time as well. Nowadays, we complain about our 'lack of time' to do certain things. If you think about it, semantically, the phrase 'lack of time' does not make any sense; we do not have less time than our ancestors, days have not gotten shorter, the Earth is not spinning around faster. But, what we *expect* from a day has changed; the work that we consider plausible within a day has changed. The productivity rates of organizations seem to be accelerated immensely; as well as the social and cultural changes seem to be more quick; we change our romantic partners much more frequently, or even our lifestyles, belief systems (Rosa 2013).

So, on the one hand, technology enables us to communicate, travel and transfer goods at high speeds. On the other hand, acceleration of these processes inevitably takes something away from us, from our experience of life: our ability to have control of our time. Tomlinson calls (2007) this a 'culture of instantaneity'; in which we got used to doing things at high speeds. If we need to get in touch with someone we want them to be quickly accessible, if we need stuff we want them to be delivered fast; we want instant gratifications of desires. But there is another side to this: people who want to get in touch with us, are also as impatient as we are.

Being able to communicate at high speeds offer intimacy with people that are away; but this can also be burdensome to some degree (Hand 2017). Since we are *able to* communicate at high speeds; then we are *expected to* communicate at high speeds; we are expected to be 'constantly available to and for communication' (Tomlinson 2007). Hand (2017) calls this 'mediated perception of time' and argues that there is nearly no chance to have an unmediated perception of subjective time in this age since we carry our devices with ourselves to wherever we go; smartphones are 'continually mediating people's movements through the world'. He summarizes (2017) the situation in these words:

“modern technology increasingly *demand*s things of us, in its own terms, at all times of the day [emphasis added].” Demand is an interesting choice of word; and raises an important question: What do these technologies really *demand* from us?

“Perhaps most significantly, the time we’re allowed to concentrate exclusively on one thing is progressively diminishing: we are constantly interrupted by a stream of incoming messages, phone calls, television and radio announcements, or merely by sudden breaks in our flow of consciousness that disrupt whatever activity we happen to be pursuing.” (Rosa and Scheurman 2009)

The reason why we are surrounded with streams of incoming messages, phone calls, notifications, reminders or other ‘sudden breaks in our flow of consciousness that disrupt whatever activity we happen to be pursuing’ (Rosa and Scheurman 2009), brings us back to our topic Persuasive Technology; all this pervasiveness of technology has to do a lot to with technology becoming more and more persuasive day by day; and it has a lot to do with the basic principles PT is built on.

As seen in these examples, none of the contemporary theorists refer to PT when discussing these issues (the only exception is Verbeek 2006; 2009). They refer to this transformation as ‘digitization’ or they refer to these technologies as ‘modern technologies’. But without knowing they are actually criticizing Persuasive Technology in many cases. In essence, there is not a lack of critique; instead there is a lack of terminology of what is being critiqued. On the other hand, the PT field is so focused on the practical implications that it lacks this type of in-depth critique. This is not a big secret revealed here, the call for contemplation on ethics of PT has been a popular call since the field has been founded. For these reasons, translation and exchange of concepts here is crucial. Therefore now, we will move onto the basics of PT, and the logic behind its working mechanisms, in the next subsection; to have a better understanding of our current technological world.

2.3 Differential Qualities of PT: Behavioral Change and Attention

The original intention behind the founding of the field PT, was not to build an environment that is constantly distracting us for no reason. PT has the potential to create truly beneficial behavior and attitude changes; and persuasion has been a part of human experience long before the founding of the field. In their highly cited conference proceeding IJsselsteijn et al. (2006) describe the current situation in these words:

“Persuasion is part and parcel of human interaction. From the serpent in the Garden of Eden to our modern mass-media society, persuasive efforts abound in a continuous attempt to influence our attitudes and behaviors, convincing us to spend money on one product rather than another, to vote for a particular political party, to stop smoking, to exercise more, to fight for environmental conservation, animal well-being, better schools. Or to eat an apple.”
(Ijsselsteijn et al. 2006, 1)

Influencing buying decisions or the political ideas are out of the context of this study; but is it not interesting that we depend on outside sources to be ‘persuaded’ into making healthier choices just as much as those? This passage (see Ijsselssteijn et al. 2006) captures situation we are in, very well. We all have very different perspectives on political issues; we all have very different tastes about art and aesthetics; but most of us would probably agree on health issues. Many would agree we should stop smoking; we should exercise more; and we should choose the apple. Still, we are talking about persuasion via technology in this context.

We are dependent on technology in some way or another, even to convince ourselves to make healthier choices; even to choose the apple. Why do we not just make the decision to change, and then simply change?

2.3.1 Dynamics of behavioral change

When speaking about behavioral change and adjustments, it is important to understand what makes change difficult is not the lack of intentions; people usually have a genuine intention to change (Kraft, Schjelderup-Lund, and Brendryen 2007). We all want to choose the apple rather than an unhealthy snack; we all want to make decisions that are going to improve our health and well-being. However, intentions to change lifestyle are rarely successful (Sutton 1994). Transforming the motivation into successful long-term change requires a volitional phase; including planning, initiating and maintaining (Gollwitzer 1990). In essence, change comes in phases; and there is a ‘psychological chronology’ (Kraft, Schjelderup-Lund, and Brendryen 2007) of the change timeline; and, not being able to build and maintain new habits is a result of self-regulation failure. The intent and motivation are key factors to *initiate* the change process, but self-regulation is a key factor in maintaining behavioral change. Put simply, we want to choose the apple, and perhaps we do... Once. But what about other times? This is where interactive

technologies come into picture; they provide an opportunity to accompany people throughout change phases (Kraft, Schjelderup-Lund, and Brendryen 2007).

In essence; in order to change, we need *reminders of the fact that we want to change*; these reminders do not necessarily have to be anything technological; for instance ‘keeping a gym bag by the door as a physical reminder to work out’ is a great example for a non-technological reminder (Bickmore et al. 2007); whereas the digital equivalent would be setting an alarm or scheduling weekly reminders.

In the context of PT, these reminders are called *triggers* (Fogg 2009); which are one of the three essential criteria; that must be fulfilled in order to persuade people into doing something (it is important to note that persuasion is considered as behavioral change rather than attitude change in this context). According to Fogg, triggers are usually overlooked; and, in most cases they are the missing part in unsuccessful persuasion attempts. FBM (Fogg Behavioral Model) suggests that, in order to achieve successful behavioral change; the criteria of motivation, ability and triggers must be fulfilled all at the same time.

Put simply, one can be highly motivated and highly capable of going to gym; but if there is nothing around to remind this intention; there is a great chance that life may get in the way. Since our study is focused upon MBMAs, another great example would be setting an intention to meditate every morning; there are so many things that can go wrong; one can wake up late, be late to work, be sleepy or grumpy in the mornings; the list can go on. One can be very motivated to adopt mindfulness in their routine. But being motivated to perform a target behavior is not enough; people need to be both motivated and capable; *and* they must be triggered to perform the behavior, all at the same time (see Fogg 2009).

2.3.2 FBM (Fogg Behavioral Model)

As seen in Table 1, the conceptual FBM is a very simplistic model. It has two axes; motivation and ability. There are no units to these axes because this framework is conceptual and the model only shows the relations not calculable values. There is a star on the upper right hand corner representing the target behavior. The placement of the target behavior is symbolic; not every target behavior requires high motivation and high

ability at the same time but generally speaking this relation is typically necessary for target behavior to occur. The third factor, trigger, is not shown as an axis but it is placed close to the target behavior star suggesting that the trigger must be present and prior to the target behavior. One can imagine the target behavior star and the trigger could be placed anywhere inside the plane to look into specific scenarios.

FBM simplifies the behavioral change process very elegantly; all the possible unsuccessful persuasion scenarios can be traced in the table. For instance, users' motivation can be very high to perform a target behavior but they might not have the ability to perform it; on the other hand they might be highly capable of performing the behavior but not motivated enough; or they might be highly capable and motivated but they are not triggered to do it; in those cases the target behavior does not occur; on the other hand only successful scenario would be fulfillment of three criteria all at the same time.

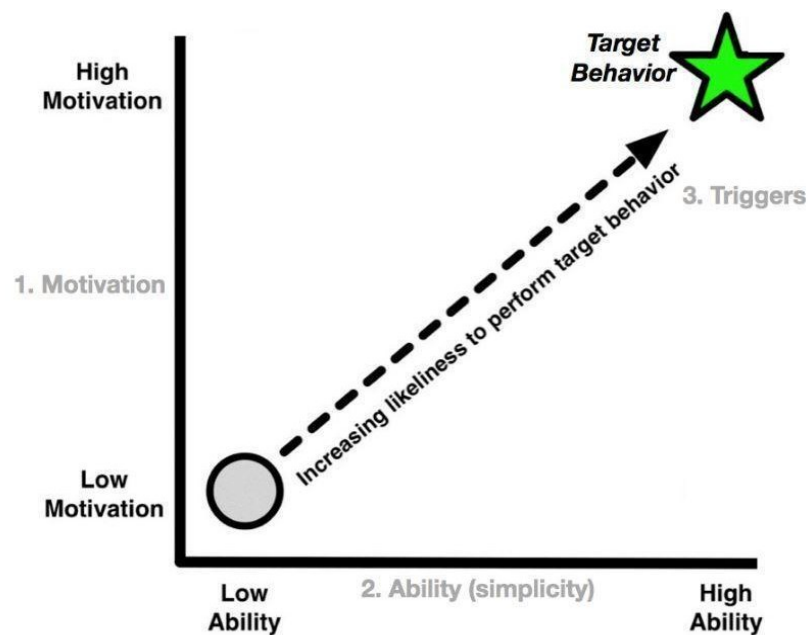


Figure 2.1 Fogg Behavioral Model; retrieved from Fogg 2009

Perhaps we could make better understanding of FBM if we quickly visit the previous example (Bickmore et al. 2006): ‘keeping a gym bag by the door as a physical reminder to work out’. Hypothetically speaking, it is usually motivation rather than ability that

challenges people when it comes to working out. We can see that the strategy of keeping a prepared bag by the door, slightly decreases the required ability/making the target behavior simpler, by reducing the preparation time; and simultaneously reminds the intention to work out and serves as a trigger. But unlike PT, that is all it can offer; this attempt of self-persuasion does not directly affect motivation.

It is a good point to remind the advantages of PT over traditional persuasive strategies that we have looked into in the previous chapter (see Subsection 2.1). For instance, a hypothetical fitness app would be advantageous in the criteria of accessing relevant data (see Fogg 2003) to do the same task; knows the user's location, and probably user's gym's location, working hours, weekly schedule which enables better timing for the trigger; on top of that PT would definitely benefit from another advantage; multimodality (see Fogg 2003) not acting just as a peripheral reminder but perhaps including sound, motivating messages and even demonstrating progress charts which would likely have also an effect on the motivation. We have mentioned earlier that PT also has advantage when it comes to being persistent (see Fogg 2003) does not depend on the users ability to set the reminder; again advantageous because it is ubiquitous (Fogg 2003) enabling context awareness and context-appropriate triggers.


Even in early stages of research, scholars were predicting that the role of triggers were expected become more and more important in the coming years (see Fogg 2003; 2009) as devices were expected to become more and more context aware, and ubiquitous. With the rise of ambient intelligence, PTs capability of triggering at right moments were expected to increase (Verbeek 2009). Which brings us to our next point. The timing, right timing, of the persuasion attempts are very important in the context of a successful persuasion event; so much so, that the ancient Greek rhetoricians even had a word for describing this concept: *kairos*, which means the opportune moment to persuade (see Fogg 2003; 2009; see also Kinneavy and Eskin 2000).

Considering the alarms, reminders and notifications of our smart devices; it is not so hard to grasp how the concept of *kairos* plays a crucial role in our technological way of living. Although these triggers, mostly cueing strategies or reminders by PT, are a powerful method to persuade, they also come with a downside: they cause task interruption for users (see Bickmore et al. 2007). This is a down side of our current technological way of

living; the technology that we have developed, perhaps to solve the problems at hand, is now bringing its own problems to the table.

So far, we have discussed the basic working mechanisms behind PT and *how* PT persuades. The literature about methods and strategies of persuading people via technology, in the context of PT are countable numbers; however, a brief introduction to the strategies and FBM is sufficient enough in the context of this study. In this subsection we have showcased the crucial role of triggers in the context of persuasion via technology; how people need to be reminded of their original intentions to change. PT is advantageous over people in this aspect; and takes this advantage to the fullest. As a result we are living in a world of alarms, reminders, notifications. However, it is also possible to look into this current situation from a broader perspective: Attention Economy. And now, we will move onto that aspect in the following subsection.

2.4 A Persuasive World: The Links Between Persuasive Technology and Attention Economy



“ [...] in an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume.” (Simon 1971, 40-41)

Simon never named this phenomenon himself, but what he described with these words is now widely known as Attention Economy. Nearly a half century later; research from a wide range of disciplines such as cognitive science, psychology, neuroscience and economics confirm that; humans really do in fact have a limited amount of cognitive resources and attention is a limited resource (Barrouillet et al. 2007). But what exactly is attention? According to Davenport and Beck (2001) attention is a ‘focused mental engagement on a particular item of information’.

In essence, drawing attention to something inevitably results in disturbing the attention to another activity. Since attention is a scarce resource obtaining attention is “obtaining a kind of enduring wealth; a form of wealth that puts you in a preferred position to get anything that this new economy offers” (Goldhaber 1997).

Today, in 2021, it is very easy to grasp this phenomena, especially because of the growth of new media platforms. Considering the structured notifications of our smart devices; it is fair to say that we are truly living in a world where technology companies are competing for our attention. Massive platforms like Facebook, Twitter, Youtube, Snapchat, Pinterest, Reddit, Tiktok and Linkedin among others; all use digital advertisement models for revenues. Since these services are generally offered free to users; their dependence on profit from advertisements lead these platforms to maximize time spent on their platforms and increase engagement. As a result such huge companies compete with each other for users' time and attention; which truly seems to be the new currency as Simon (1971) claimed.

As mentioned in previous chapters, the amount of time we spend on interactive media is enormous; internet users spend an average of 6 hours and 54 minutes online each day (see Subsection 2.1; see also Kemp 2021). Considering how much time we spend on our smart devices, the internet and apps; we can assume that these platforms are in fact very successful at engaging users and capturing attention. This was foreseen decades ago; in 1997, Goldhaber wrote:

“Web and the Net can be viewed as spaces in which we will increasingly live our lives, the economic laws we will live under have to be natural to this new space.” (Goldhaber 1997)

2.4.1 Design in attention economy

Although the attention economy is a well-known phenomenon; many miss Simon's emphasis on design. When introducing the phenomenon of attention economy to the world, Simon (see 1971) argued that designers of information systems at the time, were incorrectly focusing on information scarcity as *a design problem*; resulting in systems that are designed to offer as much information as possible; whereas the true need was systems to filter irrelevant information.

It is now clear that Simon's vision (1971) came true. Today we are truly faced with advanced filtering systems; that filter irrelevant information automatically. We do not filter content anymore, we do not sift through data; instead it is *recommended* to us. Youtube recommends what to watch next, as well as Netflix; whereas Spotify offers

music based on our taste. Even when we are shopping we do not have to sift through products, e-commerce platforms do the work for us. Recommendation algorithms unburdening us from the pain of looking into all the options we do not like, just so we can find one we love.

The thing is, personalized recommendation algorithms that do not require users to actively filter information; are great examples of PT. They are a combination of two of the seven basic strategies that PTs in the form of tools can adopt (see Fogg 2003), which are called tailoring technology and suggestion technology. Similarly, the examples we have looked earlier; all the alarms, structured notifications, reminders they are also a form of suggestion technology (see Fogg 2003) too. And, as we have briefly looked into the FBM (Fogg Behavioral Model), they are a crucial element of behavioral change; they are triggers. One might think that it is a stretch to think of notifications in terms of an intentional attempt to change behaviors. In the traditional sense it is true; when we receive a text or a call or an email; there is no attempt to change us in any way; that is just how texting or emailing works. On the other hand, we do not just receive notifications from people anymore; Youtube sends notifications about what to watch next, Pinterest sends notifications about what to explore; e-commerce platforms send notifications about upcoming sales; and these are attempts to change behaviors. These are examples of persuasion scenarios that users might act in ways that they do not originally intend to. In essence these are attempts to draw the scarce attention of users onto the platforms that profit off it. Hypothetically speaking, someone might be trying to catch a deadline but might be enticed to watch something on Youtube ‘very quickly’; or someone might be trying to save up money but might be enticed to buy that one shoe since it's on sale. Of course, these are purely hypothetical scenarios, one can also resist the temptation and carry on their work.

Unfortunately, there is consistent empirical data that these attempts to change behaviors have negative effects on users. For instance, even an ignored notification can cause negative effects on performance; the distraction caused just by notifications is nearly as distracting as users’ active use of these platforms and (Cutrell et al. 2001; Stothart 2015). These interruptions cause increased stress, alters work strategies and mental states and increases task reorientation time significantly (Mark et al. 2008). In addition to these long

term effects; these interruptions can even lead to death in safety-critical conditions (see McFarlane 1999; 2002). On the other hand studies show that users' responsiveness to these notifications heavily depend on what users' emotional state (Hudson et al. 2002) and what they are actually doing when they are interrupted or reminded (Ho and Intille 2005).

These notifications not only disrupt our attention to a task at hand; but moreover, they slowly make us build a habit of checking these platforms regularly. The empirical data shows that people do not use their devices to achieve a task they have on their mind; instead they just do it out of habit (Lukoff et al. 2018). Put more simply, people do not open Youtube, to watch something specific; they just open it to pass the time; same applies to Netflix; or Instagram, people do not open Instagram to check on their loved ones, they just do it out of boredom. Moreover, the habitual use of technology is just one side of the coin. Sometimes people consciously, not just habitually, use technologies, especially smartphones, to keep themselves occupied in order to avoid uncomfortable situations. Recent findings suggest that "93 percent of 18–29 year olds surveyed use their smartphones to 'avoid boredom and ignore other people'" (see Hand 2017).

Hand (see 2017) calls this phenomenon 'digital boredom' and argues that it roots from escapism; escapism from the self, from one's own problems, from the fast pace of life and from the stress that, ironically, technology brings to our lives. He further argues that digital boredom prevents another phenomenon called profound boredom (see Heidegger 1995 [1983]). In essence, profound boredom is one of the criteria of being authentic; being profoundly bored results in one self-reflecting and eventually becoming authentic; but it is usually prevented by superficial boredom (see Heidegger 1995 [1983]); which is keeping oneself occupied with all the mundane things going on in one's life.

In essence, if you keep yourself busy by checking your phone in uncomfortable situations; that is a great example of superficial boredom. So on the one hand, technology enables a 'filling in of time' with mundane activities (Hand 2017); on the other hand, spending, or wasting, time as such; leaves nearly no time for self-reflection. With such level of distraction; it gets harder and harder to focus on tasks at hand, especially hard ones. Hand (2017) explains in these words:

“Another way of thinking about digital boredom in terms of ‘distraction’ is manifested in a general concern about a perceived ‘inability to concentrate’ among the young as observed by the old, as individuals continually scroll and thumb through their digital updates, schedule, plan, tag, link and comment. Such activities potentially ‘squeeze out’ any time for considered reflection or indeed profound boredom. [...] This ‘general mood of boredom’ would seem to proliferate in the social media age, where the status-update and the ‘new’ device precedes thought and shapes it in terms of fleeting novelty. [...] this focus on the present by moving from one distraction to another prevents people from experiencing an authentic connectedness through time. In less esoteric terms, as the speed of contemporary life increases ‘... the more we forget, and the more we forget, the less we know who we are or where we are going’.” (Hand 2017, 120-121)

2.5 Rising Need to Calm Ourselves: Attention, Mindfulness Practices and Mindfulness-Based Mobile Applications

In the previous subsection; we have established that in an information-rich world our attention has become *the* scarce resource; and obtaining this attention has become a form of ‘obtaining a kind of enduring wealth’ (Goldhaber 1997). We have emphasized the fact that in such market conditions, PT is likely to be used to obtain this attention. And such application of PT is the root cause of our distracting world we are currently living in; not its application for other causes like health and well-being, or raising environmental awareness. But this does not mean the apps serving these core functions can not adopt PT to capture attention too.

Theorists argue that our technological developments over the past decades caused substantial changes in our way of living. Put simply they argue, we have no time left to sit alone and self-reflect. Empirical data also backs these arguments up; the constant notification bombardment is causing serious task interruption issues; users do in fact spend more time with technology than they originally intend to and our modes of attention substantially changed.

Interestingly some theorists (Hand 2017; King 2016), argue that this acceleration is the reason why simplicity movements such as mindfulness are trending in the first place:

“ [...] people ‘feel busy’ or ‘harried’, often in a compressed state of time, searching for tools to manage and mitigate the stress, but also engaging in ‘simplicity’ movements such as ‘slow

food', 'slow cities' and so on. The emergence of 'mindfulness' and 'digital detox' initiatives add to this sense of being overwhelmed by the expectations of accelerated digital media and the seeking of any kind of escape." (Hand 2017; 120)

Similarly, King (2016) also argues that:

"[...] a critical analysis of the modern mindfulness movement, from the point of view of the history of ideas, must also examine the modern history of distraction, its mediated intensification in an age of fast-paced digital technologies, the levels of stress and anxiety produced by continually dispersed attention in an age of perceived economic and social precarity and the requisite demand this has created for a variety of relaxation techniques such as yoga and mindfulness-related practices that seek to intensify self-awareness and promote a non-distracted sense of emotional integration, calmness and well-being." (King 2016; 39)

The important question is: Why? What does mindfulness practices offer in this environment? To develop an in-depth understanding firstly, we need to look into what mindfulness really is.

2.5.1 Mindfulness discourse over the years

Mindfulness can simply be defined as intentionally focusing attention on the present moment without judgment (Brown and Ryan 2003; Kabat-Zinn 1994). It is a state of awareness that provides individuals an opportunity to concentrate on present experiences and observe the process that occurs in their minds. Although mindfulness is a practice based on eastern traditions, it is a universal and hereditary ability that can be accessed by anyone (Kabat-Zinn 2003); everybody can practice this skill and benefit from it, it is a skill that requires practice and effort (Bishop 2002, Kabat-Zinn 2003; Grossman et al. 2004).

Focusing on the present moment eliminates the possibility of ruminating about the past or worrying about the future; which leaves individuals with fully observing and accepting what is happening in oneself and in others both mentally and physically (Özyeşil 2012). By practicing mindfulness people learn to accept what is happening around them calmly, releasing regrets about the past and worries about the future.

Although mindfulness is generally associated with relaxation; it is important to emphasize that it is not equivalent to relaxation. On the contrary, mindfulness trains the mind in a

way that enhances the capability of self-regulation of attention (see Bishop et al. 2004). For instance Hanh (1987) defines mindfulness as a skill which “keeps people focused on work, be aware and ready to handle problems intelligently and also successfully.” Similarly Thera (1972) defines mindfulness as “the clear and single-minded awareness of what actually happens to us and in us at the successive moments of perception.” As a side note, mindfulness is also sometimes used interchangeably with meditation too; however, meditation is just a way of practicing mindfulness (see Gunaratana 2011, Olendzki 2009, Thompson and Waltz 2007) Mindfulness does not only occur during meditation, it is a state of mind that can be maintained during daily routines. For instance, one can be mindful by being highly attentive when speaking with a close friend, being open and aware of subtle emotional tones underlying the conversation (Özyesil 2012). Openness and receptiveness are also important aspects of mindfulness; these regulate and sustain consciousness of ongoing events and experiences (Brown and Ryan 2003).

It is important to note that mindfulness practices in their original form were not secular practices that we perceive as today. They can be traced to the religious Buddhist traditions that are over 2500 years old (Cousins 1996; Sun 2014). Of course, this detachment from the foundations of Buddhism can be, and are, criticized. Mindfulness in the context of Buddhist tradition has foundations for ethical understanding, and has a purpose for liberating people from greed, hatred, delusion; secular mindfulness does not have these foundations (Sun 2014). Therefore modern mindfulness practices mindfulness has even been called ‘McMindfulness’ (Sun 2014) because of the lack of such foundations. Such accounts argue that meditation has become a hybrid of an eastern tradition and western values of globalism and capitalism (Urban 2013). Another criticism to keep in mind is that Buddhist tradition promotes collectivism whereas the secular version seems to promote the opposite doctrine, individualism (Hickey 2010). Some even argue that mindfulness practices have been established as “the hegemonic ideology of global capitalism [...] Western Buddhist’ meditative stance is arguably the most efficient way, for us, to fully participate in the capitalist dynamic while retaining the appearance of mental sanity” (Zizek 2001, 13). On the other hand, such accounts are usually criticized for not having an in-depth understanding of the diversity mindfulness practices or its transformation throughout the years (see King 2016; see also Anālayo 2020; Walsh 2016). King explains in these words:

“[...] a critical understanding of the emergence of the modern mindfulness movement must consider not only the impact of consumer capitalism and new digital technologies, but also the modern history of mediatised distraction and the levels of stress and anxiety engendered by changing lifestyles, occupational patterns and new technologies (such as email) that demand a state of continually dispersed rather than sustained attention. This cognitive ‘switching’ demanded by these aspects of modern life has led to a growing demand for relaxation techniques such as yoga and ‘mindfulness’ that soothe a purposely displaced mind and seek to intensify self-awareness and promote a non-distracted sense of emotional integration, calmness and well-being.” (King 2016, 39-40)

In essence, the critiques are drawing attention to valid points; they are not completely wrong in the sense that mindfulness has been secularized, it has been transformed under globalism and capitalism, it can in fact push people to become more and more individualistic. But they are lacking; in the aspect of observing the solutions mindfulness practices offer in regards to the anxiety and depression caused by the overwhelming fast-pace of life (King 2016). In the next subsection we will briefly look into the health benefits of mindfulness practices.

2.5.2 Mental health benefits of mindfulness practices

Thanks to the popularization of these practices, we know for a fact that mindfulness techniques are very efficient at improving health and well-being; by both reducing negative traits such as stress (Coffey, Hartman, and Fredrickson 2010), anxiety (Creswell 2017, Hofmann et al. 2010), depressive symptoms (Hofmann et al. 2010, Khoury et al. 2013) as well as enhancing positive traits such as improving emotion regulation (Fennel et al. 2016) and enhancing life satisfaction and vitality (Creswell 2017; Hofmann et al. 2010). Empirical evidence (see Shonin et al. 2015) seems to be promising for mindfulness-based treatments, suggesting that improving self-awareness through mindfulness effectively can target psychological, neural, physiological and behavioral processes. And, unsurprisingly, mindfulness-based techniques are trending in psychotherapy because of their effectiveness (Segal et al. 2018) in the treatments of depression, anxiety, mood disorders and behavioral addictions. Mindfulness is positively associated with healthy relationships, ‘including positive affectivity, self-esteem, and life satisfaction’ and negatively associated with ‘negative affectivity, anxiety, anger-hostility,

neuroticism, depressive symptoms, and stress reactivity (see Brown and Ryan 2003). In addition to these direct effects, mindfulness also has indirect positive effects on people by improving self-regulated functioning (Brown and Ryan 2003, Brown, Ryan and Cresswell 2007).

When speaking of mindfulness and mental health, we also have to mention the Covid-19 pandemic, which is still going on in 2021 (when this study is being carried out). Earlier, we have drawn attention to the fact that demand for mindfulness apps heightened after Covid-19 pandemic (Ceci 2021; 2022); noting that both the public awareness about what mindfulness practices are, and people's interest in them have increased; people's intent to use MBMAs have risen; from 20% to 63% in between 2019 and 2022 (Ceci 2022).

To understand why, we must look into the conditions the pandemic has caused. At the beginning of the pandemic, governments have implemented many measures to minimize social contact between people such as local or even nationwide quarantines, physical isolation and social distancing. Similar to many other governments, after the first confirmed case in Turkey in 10th of March 2020, government took measures such as obligatory quarantines for children (under 18 years old) and the elderly (over 65 years old), 15 day quarantines for individuals traveling from abroad; making wearing face masks obligatory in public spaces such as supermarkets, shopping malls etc. as well as some private spaces such as personal cars; restricting travel within big cities and online education in all schools (elementary schools, highschools, universities). While these measures were necessary to get the pandemic under control and slow down the spreading of coronavirus, they also caused adverse effects on people's mental health (Saricali et al. 2022).

In such stress-inducing conditions it is plausible for people to seek self-help strategies and mindfulness practices is one of them. At this point one could question whether mindfulness practices truly help to ease the stress in such conditions, or not. One recent study conducted in Turkey (see Saricali 2020) showed that mindful awareness; did in fact played a significant role in mediating the fear of COVID-19. Whereas participants who scored higher on MAAS (Mindful Attention Awareness Scale) were partially buffering the fear of COVID-19 via mindfulness and humor. If we also take the isolation measures

into account, during this time, it is understandable why the interest in these apps have increased immensely.

Similarly, Saricali et al. (2020) concluded that especially after the Covid-19 pandemic, teaching people about mindfulness might help them cope with the stress induced by the pandemic and pointed to the potential of mobile applications present; arguing that by establishing a set of responsive mindfulness activities followed through smartphone applications people can benefit from such practices. Which brings us to our case study in this thesis study: MBMAs.

2.5.3 Technology mediation of mindfulness practices: MBMAs

MBMAs (Mindfulness-Based Mobile Applications), can simply be described as interactive mobile applications that provide users guidance and training about mindfulness practices (see Flett et al. 2019; see also Cavanagh et al. 2014, Mani et al. 2015, Plaza et al. 2013). It is important to note there is no consensus on the terminology itself; while some (see Mani et al. 2015) refer to them as MBMAs (Mindfulness-Based Mobile Applications) others (see Flett et al. 2019) simply refer to them as mindfulness meditation apps. In this study, we will refer to them as MBMAs.

Firstly, we must note that MBMAs are a subfield of mHealth (Mobile Health); a research field that investigates the mediation of health related behaviors via mobile devices; such as smartphones, tablets or PDAs (Personal Digital Assistants) to support healthcare and wellbeing practices (Free, Phillips and Felix 2010). Generally speaking, mHealth projects aim to create long-term behavior change amongst users such as healthcare providers, patients or both.

When speaking of mHealth it is important to acknowledge that, there are limitations that the portability of mobile devices bring to the table; such as the small screen size, physical memory and processing capabilities, and limited power supply (Kailas A, 2010). These apply to MMBAs too; in essence when looking into MMBAs, we are looking into apps that offer mindfulness training through a small smartphone screen.

On the other hand, the mobility and connectivity aspect of these technologies are usually perceived as an advantage as opposed to personal computers (Mani et al. 2015). This applies to MBMAs as well; one who has access to the Internet, can easily access mindfulness training via these apps.

It is important to note that the majority of the mHealth apps focus on physical health and well-being rather than mental health (see Harrison et al.2011, Free et al. 2013). So, MBMAs are just a minority in the mHealth category.

If we turn back to MBMA literature; there is consensus that they present an opportunity for overcoming many issues that come with typical mindfulness meditation training (see Flett et al. 2019; see also Cavanagh et al. 2014, Mani et al. 2015, Plaza et al. 2013). These issues mostly consist of accessibility issues; such as the low number of qualified instructors in the field (Kabat-Zinn 2003), requirements of organizing in-person and group training sessions such as scheduling and logistics (Carmody and Baer 2009) and significant financial costs (Cavanagh et al. 2014). Considering the challenges of providing a mental health service to millions and accessibility issues to such services, MBMAs seem to have the potential to help to introduce a wide range of people to mindfulness practices.

On the other hand, of course, there were initial doubts about whether MBMAs would deliver positive results like face-to-face mindfulness training (Mani et al. 2015). There have been several studies (Carissoli, Villani, and Riva 2015; Chittaro and Vianello 2016; Economides et al. 2018; Flett et al. 2019; Howells, Ivtzan, and Eiroa-Orosa 2016) that tested effectiveness of use of MBMAs for improving mental health. Findings suggest that, similar face-to-face mindfulness training, use of MBMAs reduce depressive symptoms and reduce stress (see Bostock et al. 2018; Chittaro and Vianello 2016; Flett et al. 2019; Howells et al. 2016).

An interesting empirical study conducted on MBMAs' effects on people so far is the study of Flett et al. (2019); in which scholars investigated the changes of mindful attention levels, reduction of depressive symptoms and anxiety over the course of 30 days of MBMA use. I think what made this study very interesting was the control group; half of the participants were randomly assigned to use another app, Evernote, which is an organization app that *promises to improve attention to daily tasks* just like MBMAs.

Scholars (Flett et al. 2019) hypothesized that people who used MBMAs would improve their attention skills since empirical data about mindfulness practices repeatedly suggest so; and they also hypothesized that the control group would not have significant changes in mindful attention which would eliminate the chance of digital placebo effects. Interestingly, the control group *not only* did not show any positive changes *but also* reported negative changes; the data showed that 30 days of use of Evernote app delivered mostly poorer mental health outcomes. The study not only showed that the positive effects of MBMA use are not digital placebo effects; but furthermore, I think data shows that mindfulness practices themselves, whether they are mediated via technology or not; have something inherent to them about attention regulation as opposed to other design attempts to regulate attention.

Empirical data from other studies seems promising too. Data shows that; significant positive effects on reduction on depressive symptoms begin just after 10 days of use of MBMAs (Howells et al. 2016) and use frequency of MBMAs is correlated with positive improvements (Bostock et al. 2018). Simply put, people who use MBMAs more frequently show greater psychological improvements compared to those who used the app less frequently.

At this point we must note that MBMAs for mental health support is a great opportunity for Turkey (where this study is being conducted) too. Number of professionally trained mental health providers and agencies in Turkey is limited compared to Western countries (Gokalp and Akuzum 2007). In addition to this, stigmatization of mental health issues seems to be a crucial problem in Turkey throughout the years (Ozmen et al. 2004, Ozmen et al. 2005, Bilican 2013). In such conditions, apps that can mediate mental health related behavior, such as MBMAs, are usually found advantageous for overcoming these challenges. On the other hand, there are challenges MBMAs bring to the table themselves too.

So far we have looked into the studies that investigated the effectiveness of MBMAs. But besides the effectiveness, there is still much to explore; quality and efficacy of these app based interventions are still in question (Mani et al. 2015). A study (Mani et al. 2015) showed that only %4 of MBMAs of a sample size consisting of 700 apps that were marketed as mindfulness apps, provided actual mindfulness training and education.

According to Mani et al. (2015) majority of the so-called mindfulness apps are either timers or reminders for meditation and relaxation; and categorizing these apps as ‘mindfulness apps’ is inappropriate. So on the one hand, we have empirical evidence that MBMA use delivers positive results to users, on the other hand we also have statistical evidence that not every app that is marketed as a ‘mindfulness app’ can not be considered and MBMA and can not deliver such positive results; which brings us to the qualitative studies in the field.

Unfortunately, the number of qualitative studies conducted on MBMAs seems very limited compared to quantitative studies. If we broaden our view, and instead of specifically looking into the studies on MBMAs, explore studies conducted on the effects of technology use in a broader sense; there are some qualitative studies that investigate user experience. For instance there are studies investigating how integrating wearables or virtual reality (see Sas and Chopra 2015, Shaw et al. 2007, Vidyarthi et al. 2012) deliver positive effects on self-awareness and self-regulation during meditation.

A qualitative study (Rouquet and Sas 2018) showed that the majority of mobile meditation apps focus on audio guided meditation processes which results in focusing more on extrinsic and static meditation rather than intrinsic meditation process. Rouquet and Sas (2018) drew attention to the findings that suggest the effectiveness of intrinsic processes compared to extrinsic processes are greater based on neuroscience findings (see Nash et al. 2013) therefore claimed that guided meditation is a less effective technique in terms of health benefits as it provides relaxation rather than mindfulness, which can indicate an unexplored design space. The study also showed that the majority of these apps lacked measurement of effectiveness of meditation training; only one MBMA (Headspace) was evidence-based in terms of health benefits (see Rouquet and Sas 2018).

2.5.4 MBMAs from a PT perspective

Readers might have noticed this: What is greatly missing from the literature are studies that approach these technologies from a PT perspective. It would be unfair to say that there are none, there are several studies (see Laurie and Blandford 2015, Vidyarthi and Riecke 2014, Vidyarthi, Riecke and Gromala 2012) that have investigated MBMAs from

a Persuasive Technology point of view; and some even refer to them as calm persuasive technologies. But still, there is a lot to discover here. Even though the number of studies are very limited; MBMAs present a perfect case for PT for several reasons.

The first reason to study MBMAs from a PT perspective is simply, and obviously, their persuasive nature; their potential to create substantial changes in users. In essence; when we are speaking about PT we are speaking about attitude and behavior change through technology mediation (see Fogg 2003). Put simply, this means that the more substantial the change is, the more critical PTs' role gets. And when we are speaking about MBMAs we are speaking about changes such as reduction of depressive symptoms reduction of anxiety symptoms (Bostock et al. 2018; Carissoli, Villani, and Riva 2015; Chittaro and Vianello 2016; Flett et al. 2019, Howells et al. 2016). At this point, one can argue that mindfulness practices themselves, without technology mediation, are *persuasive*; in the sense that they change attitudes and behaviors. I think it just makes the case more interesting; because it might indicate that mindfulness practices have something inherent to them by nature that PT field might benefit from. On the other hand, this does not mean MBMAs do not adopt macrosuasive and microsuaasive strategies; therefore we would be looking into a combination of both the effectiveness of mindfulness practices themselves and the effectiveness of PT together.

Either way, it is important to note that these substantial changes are not side effects; these are core design goals for MBMAs; which makes them persuasive on a macrosuasion level as opposed to being just persuasive on a microsuaasive level. We have discussed macrosuasion and microsuaasion in earlier chapters (see Chapter 2.1; see also Fogg 2003) and mentioned that PT use for health and well-being is usually macrosuasive. However, I think, if we think about these terms, in terms of degrees, rather than black and white; we can see that MBMAs are highly macrosuasive; which means that they are highly persuasive by design.

The second reason to study MBMAs from a PT perspective is that their calmness is not just by-design but also by-nature. In our earlier chapters (see Chapter 2.3; see also Chapter 2.4) we have discussed how PT design is closely related to managing ways of regulating the attention of users; how drawing attention of users and using the right triggers at right timing is critical for the persuasion process (see Chapter 2.3). On the other hand we have

also discussed how these PT techniques can also be distracting, causing serious problems which raises ethical concerns (see Chapter 2.4). Mindfulness practices on the other hand, without technology mediation, work the opposite way they improve one's self-attention regulation skills as well as emotion regulation; MBMAs deliver similar results. This makes MBMAs a very interesting case of PT.

Thirdly, another important aspect we need to note about MBMAs, is that these are Persuasive Technologies, that are providing guidance about mental health issues. Scholars (Flett et al. 2019) claim that the number of limited research on MBMAs is concerning because users have the potential to be vulnerable people who essentially might be suffering from mental health problems. On the other hand, recently Jacobs (2020) drew attention to the fact that PT use, especially in health and well-being technologies, has the risk of reaching potentially vulnerable people too. So both PT and MBMAs have a common concern. We will discuss the ethical aspects of this issue in-depth in the following subsections, but at this point it is fair to say that the field of PT is in need for studies that contemplate on ethics and MBMAs provide an opportunity here, as a concrete example to contemplate on. Whereas the field of MBMAs on the other hand, is also in need of further studies whereas PT can provide a fresh perspective. Therefore studying MBMAs from a PT perspective can answer the needs of and contribute to both fields.

As a side note, another reason to look into MBMAs as PT, is the lack of such an approach even though there are substantial reasons to do so. Studies that look into MBMAs from a PT perspective (see Laurie and Blandford 2015, Vidyarthi and Riecke 2014; Vidyarthi, Riecke and Gromala 2012) are limited in number. Therefore this thesis study would contribute to the field by being one of the initial studies that adopt an PT approach towards MBMAs.

2.6 Ethics of PT in the Health Context

In the first subsection of this chapter, titled *What is Persuasive Technology?* (see Subsection 2.1); we have made a brief introduction to the ethics of PT. However, in this subsection, we will pinpoint the ethical aspects that are substantial in our context: MBMAs.

The first thing we must note in the context of ethical application PT in this context is this: Since MBMAs are designed to improve mental health, the potential users of these apps have the potential to be vulnerable people suffering from mental health problems; therefore this issue is the most significant aspect of ethical PT use in our context. Although there is a growing number of studies discussing the ethical aspects of PT (see Berdichevsky and Neuenschwander 1999, Burri Gram-Hansen 2009, Davis 2009, Spahn 2011); there were no studies that look into the interaction between these technologies and vulnerable people in health and well-being context, up until a study recently published (see Jacobs 2020). According to Jacobs (2020) the lack of such studies is “striking because these technologies are designed to help people change their attitudes or behaviors, which is particularly valuable for vulnerable people.” In this subsection we will look into the ethical aspects of PT design targeted at potentially vulnerable people.

When speaking of PT ethics, it is important to understand that the original definition of PT had an emphasis on voluntary participation of users in the process of change of attitudes and behaviors (see Fogg 2003); although coercion or manipulation are also forms of persuasion they were explicitly excluded from the field of PT by definition; in theory. But excluding it from the formal definition does not prevent designers from using PT techniques to coerce or manipulate; after all, these are public information that anyone who has access to the internet can access. Therefore, we also need to look into these concepts in the context of our study.

According to Jacobs (2020), the term ‘persuasion’ is usually understood as rational persuasion in the health field (see Beauchamp and Childress 2013, Blumenthal-Barby 2012). However rational persuasion is a narrow definition; in order for the persuasion act to be considered rational, the persuaded party needs to ‘come to believe in something through the merit of reasons another person advances’ (Beauchamp and Childress 2013). In other words rational persuasion is influencing someone by reason or over arguments. On the other hand coercion, meaning depriving the persuaded party of choice, and manipulation, meaning anything between rational persuasion and coercion (Blumenthal-Barby 2012) are distinguished by rational persuasion. Coercion in the health context is almost always ethically impermissible with the exception when someone is a threat to oneself or others (Blumenthal-Barby 2012).

According to Jacobs (2020) whether persuasion via PT is ethically permissible or not depends on two factors: (a) whether persuasion is aligned with the persuaded party's own goals and whether PT takes the persuaded party's needs and goals into account; and (b) whether the persuasion act has the potential to limit the persuaded party's autonomy. On the other hand, vulnerability is conceptualized in two different ways too; when discussing ethics in the health field: either (a) "as an ontological condition of humanity" or (b) "as a marker for context specific needs" (Jacobs 2020).

Mackenzie, Rogers and Dodds (2014) offer a taxonomy of vulnerability by reconciling these two views; according to them there are two states of vulnerability, either dispositional or occurrent. In addition to this there are two different types of sources of vulnerability (Jacobs 2020). Firstly inherent sources of vulnerability are intrinsic, they are caused by humans' nature of sociality. On the other hand situational sources of vulnerability, are caused by the environment or context of a person socially, politically or economically. A subset of this category is pathogenic vulnerability; which paradoxically gets worse with the attempts of helping the vulnerable person. For instance, someone with cognitive disabilities are susceptible to this type of vulnerability; because they have a high chance to encounter physical or emotional abuse by their caregivers (Mackenzie, Rogers and Dodds 2014). Jacobs (2020) argues that this taxonomic view enables us to think in forms of hypothetical scenarios; which is especially useful for designers throughout the design process.

For instance, Jacobs (2020) gives a hypothetical example: a young woman with bulimia using a calorie-counter app. There is no need to contemplate deeply on this; it seems like a recipe for disaster even at first sight. In terms of PT, calorie-counter apps are of course not designed for bulimia sufferers but they also do not have any measures to prevent bulimic people from using them; this can be interpreted as a designer mistake of designing for ideal user groups. Calorie-counter apps are designed for overweight people who struggle with weight loss; and they are full of microsuasive techniques to motivate their users throughout the journey who are assumed to be overweight. Another example would be: an elderly person who is persuaded by her family to use a smart medicine tracking device (Jacobs 2020). Many smart devices designed for elderly use surveillance strategies, which is one of the basic persuasion techniques (see Fogg 2003) of PT's. This

scenario could easily end with her family realizing that she is not quite capable of taking her medicine regularly and becoming worried and putting her into a nursing home against her wishes. And such problematic scenarios usually do not come up via user research.

According to Jacobs (2020) what lacks in these hypothetical scenarios is valid consent procedure. She distinguishes four aspects of PT's that users can consent to: goals and behavioral outcomes, persuasive tools the PT utilizes, individual interactions of PT and lastly, use and storage of user data. Especially the second aspect, informing users on the persuasive tools that PT utilizes, is an interesting idea. For instance, users can be informed about reduction, which is reducing a complex behavior into smaller steps (see Fogg 2003), deciding whether to interact with these technologies therefore knowing that they are subject to effective persuasive techniques.

Of course this brings us to the question of how this valid consent is going to be played out because unfortunately, users do not really read consent forms or terms and conditions, on the contrary they usually just scroll down and click "OK" (Bernal 2014, Custers 2016). Therefore Jacobs (2020) offers simplistic interfaces at the registration phase; including four steps to inform users on every aspect mentioned earlier, and including options for users as yes/no/more info. Giving users to get more information at every step is crucial and much more meaningful than bombarding them with complicated legal terms. Since MBMAs also are marketed to people who might be suffering from mental health problems, we must take these into account when analyzing MBMAs.

3. METHODOLOGY

So far, in our literature review (see Chapter 2), we have showcased that a strong need and call for calmer HCI (Human-Computer Interaction) can be observed in many fields, throughout the years. In the design field, we have observed that the need for contemplation on PT ethics is voiced by many since the field has been found (see Berdichevsky and Neuenschwander 1999; Davis 2009; Fogg 2003; Gram-Hansen and Gram-Hansen 2013; Jacobs 2020; Kight and Gram-Hansen 2019; Spahn 2012; Spahn and Nickel 2012; Timmer, Kool, and van Est 2015; Verbeek 2006; 2009). On the other hand, we have observed that another field of design, Calm Technology, has not gained much attention (see Weiser and Brown 1996; see Weiser and Brown et al. 1997) despite the fact that it has the potential to solve many problems at hand. Whereas PT, has been trending very rapidly over the years (see Hamari et al 2014); even though it seems to add into the problem itself, rather than offering solutions.

We have also showcased the critiques of technology outside the design field, sharing similar concerns. We looked into many contemporary theorists' critiques of technology causing an acceleration and routinisation of our daily lives; substantially changing the way we live and the way we perceive life (see also Agger 2011; Castells 2012; Couldry 2012; Green 2002; Hand 2017; Keightley 2013; Lash 2002; Rosa 2013; Shove, Pantzar, and Watson 2012; Taylor 2014; Tomlinson 2007; Urry 2000; Virilio 2000; Wajcman 2008; 2014). We also looked into more general critiques of technology (see Habermas 1985; 1987; Heidegger 1966 [1959]; 1977 [1954]; Marcuse 2006 [1964]; Latour 1994; Baudrillard 1983) which date way back compared to the observations in the design field. But more importantly, they also offer explanations about the dynamics behind technology getting more and more persuasive from different perspectives.

With these observations, we have started this thesis study with the primary question: How can persuasive technologies become calmer? And instead of contemplating on Persuasive Technology in a broader sense, we have focused on a study case; MBMAs (Mindfulness-Based Mobile Applications) for several reasons. Throughout our literature review, we have explained many advantages (see Subsection 2.5) of choosing MBMAs as a case

study in this thesis. However, it is a good point to remind our readers the most significant reason: MBMAs have some qualities of Calm Technology by-definition, they refer to Calm Technology principles inevitably; whereas they are inherently PTs by-definition too. Therefore, they are great study cases to analyze features that are *both calm and persuasive*, as well as features that are *highly persuasive but not calm*.

Since the development of technology has very complex dynamics; the answer to our research question can not be found with a direct methodology. Put simply, when speaking of PT becoming more calmer, we are speaking of both intentional choices of people involved in developing technologies, and also a technological evolution on a bigger scale that is independent of these micro design decisions; that usually translates into unintended effects technology has on us that designers do not foresee. In addition, this question requires us to discuss, calmness and persuasiveness of technologies; which is challenging in and of itself. Although these two concepts seem contradictory at surface, they do not directly translate into ones and zeros; or black and white; technologies can be calm and persuasive. Since there is no direct guide to determining which technology is calmer and which one is more persuasive; or no guide to determine the degree of these qualities; we need to conduct an in-depth analysis on these technologies. For all these reasons, we have proposed three secondary research questions:

Secondary RQ1: How do the degrees of Calmness and Persuasiveness relate to each other in systems designed to change attitudes and behaviors?

Secondary RQ2: How do designer intentions and agency play a role in technology becoming calmer or more persuasive?

Secondary RQ3: How does technological evolution on a broader scale play a role in technology becoming calmer or more persuasive?

To answer these questions we have juxtaposed two methodologies and conducted our field research in three steps. Firstly, we have conducted CMDA (Critical Multimodal Discourse Analysis) on the apps Headspace, Calm and Meditopia; to look into concrete examples where we can discuss calmness and persuasiveness of specific features. Simultaneously we have contacted designers that work in these firms, requesting to conduct EIs (Expert Interviews), to develop an understanding of the design process and

designer intentions. And finally, we have also contacted professional mindfulness practice trainers that do not have any connections to these firms to conduct EIs to gain insight on a critical outside point of view of PT use in the context of mindfulness.

We aimed to achieve an objective view of the designer intentions and their use of PT in their designs by juxtaposing the data that we gathered with CMDA and EI; whereas we aimed to gain insight on the mediating role of technology in mindfulness training by juxtaposing views of two professional groups; designers that work on MBMAs and professional mindfulness trainers.

3.1 The Sampling Process for the Apps

One challenge in studying MBMAs (Mindfulness-Based Mobile Apps) has been choosing the apps to look into. In studies prior to this one, scholars (see Flett et al. 2019) observed that one problem studying MBMAs is that most of the MBMAs that were investigated in previous studies do not exist anymore in app markets because they were newly released apps that did not have high user counts; this is a general issue when studying apps, they might not survive the market which in return might make the study become irrelevant after a period of time.

For this reason, similar to Flett et al. (see 2019), we also believe that there is more value in identifying and studying popular MBMAs with high user counts and committed customers that have a higher chance to survive the market, stay available for new users and stay relevant for further research. This is a pattern that can also be observed in a broader scope; only a small number of apps make up the majority of consumer downloads which means that even though there are many choices, the majority of the users are mostly exposed to only a handful of apps. This makes these popular apps' influential reach wider compared to newly released or niche apps; which also corresponds with one of the advantages of PT; they can be distributed easily and they have the potential to reach millions simultaneously (Fogg 2003).

In essence, popularity of an app translates into bigger companies; which results in more tests, more user research and overall more data, which are the basis of persuasiveness of a technology. In our context; looking into the apps that are more likely to be persuasive

makes more sense; than looking into a niche app that, hypothetically speaking, may be a good example of Calm Technology; but do not have any persuasive qualities. Therefore we have chosen purposive sampling, rather than representative sampling; and focused on the MBMAs with most user counts.

When we look into the 2021 statistics show that the top five most downloaded yoga and meditation apps are; Calm with 9.6 million downloads worldwide, Yoga Go with 5.2 million downloads, Headspace with 5.2 downloads, Meditopia with 4.6 million downloads and Yoga for Weight Loss with 1.4 million downloads respectively (see Bucholz 2021). As mentioned in earlier chapters (see Chapter 2.5) yoga is considered a practice that enhances mindfulness; therefore generally speaking, yoga apps can be considered MBMAs, however both Yoga Go app and Yoga for Weight Loss app have an emphasis on yoga practice for weight loss, which contradicts mindfulness discourse (see Chapter 2.5); this leaves us with three apps Calm, Headspace and Meditopia.

There are further reasons for studying and comparing these three apps. Firstly, worldwide statistics show that Calm is not only the most popular MBMA, but it is also the most popular mHealth app generating the highest revenue in the health and well-being category of app markets; which also includes health trackers, sleep trackers, fitness apps, menstrual cycle trackers (see Ceci 2021). This situation is not specific to the app Calm; Headspace is the 3rd and Meditopia is the 8th highest revenue generating app worldwide in the health category. As we mentioned earlier; we hypothesized that high revenue generating apps would be more advantageous in funding usability tests, user research and A/B testing compared to niche apps, or newly-found apps. They are relatively older companies, have well-established structures; as a result, these companies have the reason, the means and the workforce to make their product more and more persuasive.

In addition to these, since the beginning of the study, we had the intention to include Meditopia in this study for several reasons. The two of the most popular MBMAs, Calm and Headspace, are companies from the USA; whereas Meditopia is a start-up from Turkey (where this study is being conducted). Of course, this makes Meditopia a convenient choice because we have a higher chance of successfully contacting designers working in the company for expert interviews, to provide us a deeper understanding of

the design processes. However, in addition to this, comparing designs from different cultures would be highly beneficial to the field for several reasons.

Juxtaposing apps that were designed in a Western country, the USA, and a non-Western country, Turkey, would be a positive step towards providing us a de-Westernized view. Put simply, only looking into US based apps, would yield a one-sided insight; which is already hegemonic in the research field. So far (April 2022) studies on Meditopia are very limited (see Şekerci 2021), whereas studies on Headspace and Calm outweigh the field in numbers. Therefore this study would be one of the initial studies providing a non-Western perspective in the field of MBMAs. We believe there is more value in comparing designs from different cultures as opposed to comparing apps that were all developed in the USA. As a side note; cultural background of someone affects one's experience of mindfulness even without the mediation of the experience via technology. As mentioned in the earlier chapters (see Subsection 2.5) Turkey is made up more of a collectivist culture than a individualistic culture, which makes mindfulness discourse very different compared to individualistic cultures; changing the experience immensely (see Özyesil 2012).

Besides the aspect of the collectivist culture; living conditions such as longer working hours, lower minimum wages, high inflation, traffic etc. which all induce stress, makes Turkey a very valuable context in a mindfulness study, especially in a comparison to a Western country. As one of our anonymous interviewees mentioned (Anonymous Designer 01), Meditopia's biggest markets include non-Western countries such as Brazil, Russia, Japan etc. This data alone can be interpreted as a sign that Meditopia, an app developed in a non-Western country, has something inherent that attracts users with similar backgrounds. Therefore we have chosen to look into three most popular MBMA's; Calm, Headspace and Meditopia in this thesis study.

3.2 Juxtaposing Methodologies: CMDA and EI

So far, we have demonstrated our purposive sampling process; and reasons behind choosing Calm, Meditopia and Headspace as case studies in our study. As we have mentioned in the beginning of this chapter, we juxtaposed two methodologies; CMDA

(Critical Multimodal Discourse Analysis) and EI (Expert Interviews). In this subsection, we will explain the reasons behind choosing these methodologies for our study in detail.

First thing we must do to get into explaining our methodologies, is to look into our research question one last time: How can PT become calmer? Since this question covers many different dynamics such as the one between society and technology; another one between designer intentions and design outcomes, as well as technological trends and technology's evolution on a bigger scale; finding the answer to this question requires a methodology that can provide insight on these complex relations themselves. Therefore there are several approaches one can adopt when designing a methodology for this research question.

When searching ways how technology can become calmer; probably, one of the first things that comes into mind would be looking into the technologies at hand and analyzing them in-depth; to understand which design strategies induce calmness and which enhance persuasiveness. We have chosen CMDA (Critical Multimodal Discourse Analysis) for this type of analysis; because via CMDA we can interpret designer intentions based on design outcomes; and we can interpret possible end-results of these design choices we observe in these apps. Our theoretical knowledge of PT we have presented in our literature review, would enable us to do so. But if we were to adopt this methodology only, one can easily argue that this type of in-depth analysis is bound to be sided; mainly because it would be mainly made of our interpretations. Therefore we need a secondary data source other than these apps themselves; to generate insight on the issue.

Another way of looking into the ways for technology becoming calmer, would be interviewing experts: mainly being designers that work in these companies. As a reminder, PT is a subtopic of DWI (see Lockton, Harrison, and Stanton 2008); therefore a research without designer views would simply be lacking. We must have a deeper understanding of the design processes of these PTs one way or another, because they can not be overlooked in our context. On the other hand, directly interviewing people about their professional work can be problematic too. If we were to design this research only consisting of interviews with designers, it would be hard to argue that they are representative of an objective reality. Therefore we have also designed interviews for another professional group: mindfulness trainers; assuming that this would yield a more

balanced perspective. In essence, juxtaposing data gathered from these two methods enabled us to check overlaps and minimize personal interpretations.

Readers might have noticed this: we have not adopted a methodology to investigate how users experience these technologies. Critiques might argue that we are interpreting calmness or persuasiveness of specific technologies without conducting research with users. At the beginning of the study, we have also considered looking into the user side too. But we quickly realized, that such a study would require us to build different versions of an app that we *assume* to have different degrees of calmness and persuasiveness and test them with users and observe short and long term effects. There are some master's thesis studies, similar in nature, testing and comparing apps or extensions designed to make apps less persuasive. However, within the time limits of a master's thesis study, building apps from scratch and testing them results in very simplistic interfaces that do not resemble the complexity of the actual apps in app markets. At this point, we must note that this type of qualitative user research investigating the short term and long term effects is already dominant in the field of Persuasive Technology, as well as the field of MBMAs (see Carissoli, Villani, and Riva 2015; Chittaro and Vianello 2016; Economides et al. 2018; Flett et al. 2019; Howells, Ivtzan, and Eiroa-Orosa 2016).

In sum, we have not adopted such an approach firstly because of our time limits. But more importantly, because we observed that establishing a theory-based in-depth understanding would be more contributinal, since there are many empirical studies investigating the effects of MBMAs on users, both long term and short term. Whereas, evaluating the quality of these apps is what is missing from the field (see Rouquet and Sas 2018). Now, we will move onto explaining our methodologies.

3.2.1 Conducting Critical Multimodal Discourse Analysis on interfaces

The reason why we have adopted a multimodal approach is rather obvious; the MBMAs we are looking into adopt many different types of modes; usually when speaking of an app people mostly think in visual terms, but there are usually also audio and haptic feedback embedded in many interfaces.

“Multimodality asserts that ‘language’ is *just one* [emphasis added] among the many resources for making meaning. That implies that the modal resources available in a culture need to be seen as one coherent, integral field, of – nevertheless distinct – resources for making meaning. The point of a multimodal approach is to get beyond approaches where mode was integrally linked, often in a mutually defining way, with a theory and a discipline.”
(Kress 2012, 38)

There has already been a shift from monomodal content and media to multimodal media; and this shift has a lot to do with digitization of creative processes (see Kress and van Leeuwen 2001). In essence, before digitization, the creative process of multimodal content or environments required people (with different backgrounds and different expertises) to come together and create collectively; whereas in the 2020s, these can all be done by a ‘multi-skilled person’. Kress and van Leeuwen (2001) explain this as follows:

“[...] today, in the age of digitisation, the different modes have technically become the same at some level of representation, and they can be operated by one multi-skilled person, using one interface, one mode of physical manipulation, so that he or she can ask, at every point: ‘Shall I express this with sound or music?’, ‘Shall I say this visually or verbally?’, and so on.”
(Kress and van Leeuwen 2001, 2)

A designer perfectly fits the description of Kress and van Leeuwen (2001) of a multi-skilled person. A designer is faced with similar questions on a daily basis: Should I express this visually or verbally? Should I draw attention to this feature by color or sound? The list can go on. Since such media is produced by multi-skilled people, dealing with all aspects, there is no point in analyzing these media by isolating the visual and audio, color and language etc. This means that a holistic approach is required when dealing with such ‘texts’ that is capable of describing each mode used in the production of it (see Kress 2012).

According to Kress (2012) text is the ‘material site of emergence of immaterial discourse(s)’. Put simply, text is just an interpretation; one possible way of representation amongst many, which implies an interpreter. Kress (2012) refers to this interpreter as a ‘weaver’, someone who weaves together different ‘threads’ into a whole. These textual ‘threads’ can be in diverse forms such as “gesture, speech, image (still or moving), writing, music (on a website or in a film).” But more importantly, “the question of who

the ‘weaver’ is, and what forms of ‘coherence’ are shaped by her, him, or them, is a significant issue at all times” (Kress 2012). In the context of apps, the weavers are the designers. In essence, multimodal approach implies that by looking into the end result, the design outcome, we can understand the designers’ intentions:

“Texts realize the interests of their makers. A text is (made) coherent through the use of semiotic resources that establish cohesion both internally, among the elements of the text, and externally, with elements of the environment in which texts occur” (Kress 2012, 36)

This quality of texts, carrying clues of their creator’s intention, makes CMDA a great tool when dealing with the intentions of designers. Multimodal approach makes it possible to ask questions around both the meaning of a text itself and the process of meaning making; and, about the agency of meaning makers (Kress 2012). For instance it makes it possible to question whether there are any constraints, perhaps social or economic, in the process of meaning making and how such conditions might affect the end result.

“Multimodality includes questions around the potentials – the affordances – of the resources that are available in any one society for the making of meaning; and how, therefore, ‘knowledge’ appears differently in different modes” (Kress 2012, 38).

Providing insight on the potentials is one of the major reasons why the multimodal approach fits this study; because our emphasis is on *the potentials* of PT. When we question how PT’s can become calmer, we are essentially dealing with potentials. In this aspect alone, CMDA can yield interesting results from a Heideggerian point of view. Because Heidegger asserts that technological things themselves point out to shaping perceptions (see 1977 [1954]). Therefore we can discuss how an MBMA, plays a role in shaping the perceptions of its users based on the data gathered via CMDA.

So far we have focused on the multimodality aspect of our methodology; however there are also several reasons why we are conducting CMDA (Critical Multimodal Discourse Analysis) instead of just conducting MDA (Multimodal Discourse Analysis). Put simply, adopting CMDA enables us to discuss the ‘relations between discourse and other social elements’ such as ‘power relations, ideologies, institutions, social identities, and so forth’ as opposed to MDA (Fairclough 2012). When we are questioning how PT can become calmer; our aim is not just to describe and analyze the existing structures. To clarify, analyzing the current situation is an essential part of our research, but we also aim to

discuss potentials for a change of structure as well as discussing the existing reality in terms of certain calmness and persuasiveness. Critical social analysis inherently has this quality of evaluating already existing structures, as well as discussing potential change. Fairclough (2012) explains in these words:

“Critical social analysis can be understood as normative and explanatory critique. It is normative critique in that does not simply describe existing realities but also evaluates them, assesses the extent to which they match up to various values, which are taken (more or less contentiously) to be fundamental for just or decent societies (e.g. certain standards – material but also political and cultural – of human well-being).” (Fairclough 2012, 9)

Therefore our stance is not purely semantic as a MDA would require us to be. To be more clear, we have already started with our research drawing attention to an already existing societal problem: technology is getting more and more persuasive. Having an in-depth understanding of the current situation is only one side of the coin, whereas evaluating it is another. Wodak (2012) explains in these words:

“Unlike some forms of discourse-based research, CDA (Critical Discourse Analysis) does not have a fixed theoretical and methodological position. Instead, the CDA research process begins with a research topic that is a social problem; for example, racism, democratic participation, globalization, workplace literacy and so forth. Methodology is the process during which, informed through theory, this topic is further refined so as to construct the objects of research (pinpointing specific foci and research questions). [...] This entails a diversity of approaches to CDA research, drawing on various linguistic analytic techniques and different social theories, although all involve some form of close textual (and/or multimodal) analysis.” (Wodak 2012, 40)

In addition, developing an in-depth understanding of new media; is actually one of the six major areas CMDA is used for (Wodak 2012). Investigating the changes concerning ‘our concepts of space and time’ caused by new technologies and how ‘these changes interact in dialectical ways with new modes and genres of communication’ is one of the major areas critical social analysis is used for (Wodak 2012). Since we are also looking into the changes that are caused by relatively new technologies; CMDA is a good fit for our study. It would enable us to interpret the data gathered from the apps Calm, Meditopia and Headspace; in terms of designer intentions as well as looking into specific features’ potential effects and evaluation.

On the other hand, we have mentioned earlier that looking into this data alone could be easily criticized for forming an outside view about the design process of these apps; if we only provide a theoretical view we might interpret design decisions in the wrong way. In short, we might argue that a designer of a feature intends something whereas in reality the process might have been totally different. Therefore we have also adopted another methodology; and decided to juxtapose CMDA data with EIs conducted with designers working in the field of MMBAAs, working in either Calm, Meditopia or Headspace and another professional group mindfulness trainers.

At this point, it would be beneficial for us to look into the methodology of EI closer too. Firstly, we must note that EIs are not ‘information gathering meetings’ (Bogner, Littig and Menz 2009). Put simply, people who have expertise in one area can also be oblivious when it comes to critically evaluating their work. In essence, experts are usually considered to be people ‘who hold a certain status or exercise a function in decision-making processes in a particular field of action’ (Döringer 2021) but this does not mean EI data should be used as factual basis. Instead, we must consider EI’s main objective as ‘communicative opening up and analytic reconstruction of the subjective dimension of expert knowledge’ (Döringer 2021) rather than treating it as a purely objective knowledge resource. Bogner et al. (2009) explain in these words:

“Expert interviews are by no means simply just ‘information gathering meetings’ used primarily for collecting facts and knowledge. To clarify any misunderstandings here: expert interviews are, of course, not only a popular way of gathering information, they are also a totally legitimate method for some forms of research. [...] such interviews are not intended primarily to establish a sound factual basis, but instead follow the goal that lies at the heart of qualitative research: the reconstruction of latent content of meaning.” (Bogner, Littig and Menz 2009, 5-6)

In essence, we have also adopted EIs in a similar manner in this study. Data generated via EIs, are not presented as facts but perspectives coming from professionals. From this point of view EIs have been immensely contributory, to gain insight on the mediating role of technology in mindfulness training in general.

Interviews with design experts enabled us to see whether our interpretations formed via CMDA and actual designer intentions and their experience developing these technologies overlap. On the other hand, our expert interview with the mindfulness trainer juxtaposed

with CMDA data has provided insights on unintended effects. More importantly, these interviews alone, have provided significant insights on how professionals in the field view the overall mediation of mindfulness practices and their overall look on the use of persuasion techniques in such a context; including both from a design perspective and a mindfulness trainer perspective.

So far we have explained the reasons behind our methodology choice; now, we will move onto data gathering processes. In the next subsection we will provide more details how we have conducted our research via these two methods: CMDA and EI.

3.3 Data Gathering Process of CMDA and EI

At the beginning of this subsection, it is important to note that we carried out all three of our field studies simultaneously. But it would create confusion if we explain our process chronologically. Therefore, in this subsection; firstly, we will look into the data gathering process of CMDA and then we will look into the EI processes separately.

As we mentioned earlier we have conducted CMDA on Calm, Headspace and Meditopia's interfaces; but what does this entail? Initially we have planned to conduct CMDA on the screenshots of the apps' only on the primary tabs (homepages, and other tabs that can be accessed via one tap from homepages); because we assumed that these pages are representative of the apps' primary functions and both the similarities and differences would be significant for our research.

As the primary research coordinator, I have downloaded and explored these three apps over the course of 6 months; to observe whether we needed to include other pages in our CMDA. Throughout the observation period; it became clear that there are many features significant for our research embedded in secondary tabs. In addition, it became clear that static screenshots are not sufficient enough to capture dynamic user experiences. Therefore in addition to primary tabs; we have also included secondary tabs in our CMDA, as well as some features embedded in them (in some cases these are tertiary elements in apps' interface architecture hierarchy, in others they do not take users into new tabs). We have also included 5 to 10 minutes of screen recordings of two usage scenarios: firstly, the subscription process including setting user settings, payment options

and secondly, the general usage scenario consisting of sifting through recommendation, exploring content via direct searches, interacting with content.

One of the challenges that we faced when conducting CMDA was to present our data in a simplistic, easy-to-understand way. Because although these apps have the same core function, their interface architectures differ immensely. For instance, they offer similar features in different tabs; or they have completely different structures in their primary pages; the list can go on. Since these apps have very different visual styles, presenting screenshots side to side created visual clutter that is really hard to read and comprehend. Therefore we have created low-fidelity representations of these tabs to make it more readable, and used these visuals complementary to the actual screenshots.

Another challenge that we have faced during conducting CMDA was an update of the app Meditopia. In April 2022, Meditopia app released an update that included, but not limited to, substantial changes in the app's visual appearance (such as adding a new feature to the top of the homepage that can be described as a quotation banner, adopting a slightly different color palette etc.) Therefore, we have decided to conduct CMDA on the latest version based on the observation that the new release had some significant changes; even in the homepage, which is essentially *the first thing* that a user sees when they open an app.

So far we have looked into our process of CMDA. On the other hand there were challenges in the interview process as well. Now, we will move onto our data gathering process via EI in what follows.

For the designer experts group; we have selected our potential interviewees via conducting purposive sampling and we searched via LinkedIn for designers working only in the companies of the three apps we are looking into; either Calm, Meditopia or Headspace. We have used the keywords 'design', 'designer', 'UX' and 'user experience'. Such a search yields results both consisting of designers that have roles in developing interface architecture, and also designers that do not have any role in this aspect; such as visual designers working in marketing teams of these companies. Since a designer working on the marketing side of a company, has no role in the persuasiveness or calmness of an app; they are out of the interest area of this research study. Therefore we

excluded those results and only listed people with job titles such as: Product Designer, User Experience Designer, User Experience Researcher, Visual Designer, Motion Designer, Head of Product Design, Head of User Experience Design, Design Lead.

Such an exclusion left us with very few number designers; our initial list consisted of 9 designers from Calm, 4 designers from Meditopia, and 10 designers from Headspace, 23 in total. As the numbers suggest, the number of designers working in these companies are already low. This data alone is very significant in our context; because on the one hand, these apps have millions of users, on the other hand the interfaces these millions of people are interacting with on a daily basis, are designed by just a few people. This is actually a common criticism voiced in the design field. Think of the giant companies such as Facebook or Instagram, in their case, billions of people are affected by design choices of a handful of people. It is problematic because designers can not always foresee the societal implications of their actions; and when they have smaller teams these risks go up. That is why we also wanted to draw attention to the fact that very few people are responsible for these interface structures of the apps we are looking into in this study.

If we turn back to our sample; our initial list of potential interviewees consisted of 23 designers working either in Calm, Meditopia or Headspace. We have contacted all of these designers via LinkedIn. 8 designers out of 23 we have reached, have replied to our messages and 3 of them accepted to participate in our study. In total, we have conducted 1 expert interview with a designer from Calm, and 2 expert interviews with designers from Meditopia.

It is important to note that, only one person we have reached directly rejected to participate in our study; we have lost contact with 4 people throughout this process. This might be due to busy schedules, loss of interest, or not being comfortable about sharing their professional experience. However, it might also be due to the time difference between the USA and Turkey; because the designers we have lost contact with were from the USA. The 10-12 hours of time difference made maintaining a conversation and scheduling appointments hard.

As readers might notice; our expert interviews with designers consisted of people working in either Calm or Meditopia; whereas designers we have contacted from Headspace did

not accept to participate in our study. Since we conducted CMDA on the Headspace app as well, conducting expert interviews with designers working in this firm and gaining insight on their perspective would be contributinal. Therefore we have listed the employees of these firms again to see whether there are new employees that we can contact up until September 25th. The primary aim was to find additional voluntary participants from Headspace. On the other hand, we did not limit this relisting process to this firm only; we reached out to designers from Calm and Meditopia too. We contacted 3 designers that were not in our initial list, as well as the 4 designers that we have lost touch with. But, there were no additional participants accepting to participate in our study.

It is important to note that; the three designers that participated in our study has shown great variety in terms of their educational background, overall professional journey, their knowledge degree of the PT field, and familiarity with mindfulness practices before getting into their jobs. We will explain the backgrounds of our participants in more detail in Chapter 5; however, for now, we must note that this variety of backgrounds immensely contributed to our study.

On the other hand, in addition to interviews with designers, we have contacted professional mindfulness trainers; again conducting purposive sampling. We have reached out to 3 mindfulness trainers requesting interviews. One of them accepted to participate in our study. The intended interview questions that we have designed for this group of experts was about professionals' views on digitalization of mindfulness training and technology getting more and more involved in mindfulness training processes. We aimed to investigate trainers' observations and opinions on how face-to-face mindfulness training yields behavior and attitude change results as opposed to mindfulness training via technology mediation.

One of the advantages that we had when we were conducting our interview with this participant was the timing. Even though she is a face-to-face trainer, because of the Covid-19 pandemic, she had some experience with technology mediation during her training sessions. We could observe that she has contemplated on the issue because of the sudden change that Covid-19 has put us all through; which yielded rich conversations that benefited this study immensely.

In sum, we have conducted 4 expert interviews with 1 designer from Calm, 2 designers from Meditopia and 1 mindfulness trainer that has no ties with these firms. We have conducted all of these interviews online via the Zoom Meetings app. Our interviews took approximately around 50 minutes; shortest being 42 minutes and the longest being 1 hour and 12 minutes. During the interviews we asked all of our intended questions (see Appendix B) to our interviewees. However, since the topics we are covering during the interviews are very interrelated; we have not followed the questions respectively, instead we have moved back and forth between questions based on the answers of our participants to keep the interviews organic.

3.4 Analysis of the Data Gathered via CMDA and EI

As we have mentioned earlier, we have adopted the critical theory of technology as a framework; we must note that we have analyzed our findings mainly from an Heideggerian point of view (see 1962; 1966; 1977; 1995) however, Habermasian (see 1985; 1987) and Marcusean (2006) points of views have also been the key to enrich our discussions especially when looking into our interview data. There are many reasons, both micro and macro, that make a Heideggerian point of view a good fit for our study; and we have demonstrated these reasons in our literature review at necessary points. However, the most significant ones can be summarized in three points.

Firstly, and most significantly, Heidegger's views on technology have strong emphasis on how technologies change people's perceptions of and attitudes towards life, simply by existing. Heidegger argues that design itself is in essence rhetoric (see 1977 [1954]). When speaking of intentional persuasion mediated through technology; adopting such a point of view makes the most sense. As we have discussed in our earlier chapters (see Chapter 2.2); if we were to categorize the technologies that Heidegger refers to when presenting his ideas, we would not categorize them as PTs; simply because they do not fit into the formal definition. We can even argue that he developed his ideas based on *less persuasive technologies*. Therefore when we look into PT from an Heideggerian point of view; we are actually looking into a magnified version of what Heidegger is mostly critical of. Adopting such a framework has enabled us to provide rich discussions on our empirical findings.

Secondly, Heidegger's phenomenological stand gives us enough room to be flexible enough to discuss the experiential qualities of technology. Unlike his predecessor Husserl, Heidegger does not try to reach an objective truth through phenomenology instead his emphasis is on the subjective essences that phenomenology reveals. He provides us with terminology with his concepts of *revealing*, *concealing* and *enframing* to discuss technology from a broader view (see 1977 [1954]). Such concepts make it possible for us to discuss not only the microsuasive, or even the macrosuasive levels of persuasion that Fogg (2003) refers to; but we can also discuss persuasion beyond the macrosuasion goals of PTs and even include unintended individual or societal outcomes through design; as well as the agency of designers.

Thirdly, the Heideggerian concepts of *meditative thinking* and *calculative thinking*; which are essential elements of his critique of technology (see 1966 [1959]); are very closely related to our context. MBMAs are especially a very interesting case study in terms of these concepts because; on the one hand, they are supposed to enhance and encourage what Heidegger refers to as meditative thinking; on the other hand, they are the products of corporate firms, which makes them inherently a byproduct of calculative thinking. As a side note, I must note that Heidegger's views not only on technology but also his overall philosophy has many aspects in common with the discourse of mindfulness practices. This makes it possible for us to form an in-depth understanding of the topics we cover in this thesis study; especially since we are studying MBMAs. Since this is a master's thesis study; this correlation was advantageous for investigating the topics in-depth over the course of two years.

Up until this point, we have demonstrated the methodologies and theoretical framework that we have adopted to answer our research questions. In the next chapter we will present our CMDA data; and go over the experiences Calm, Meditopia and Headspace are assumed to offer by looking into their interfaces (see Chapter 4). This does not mean we will showcase our data gathered via CMDA and EI completely separately. As we are going over the CMDA data and having our discussions; we would also present data from our EIs as necessary. But we will provide a deeper look into our interviews in the following chapter (see Chapter 5); have discussions on the views of the professionals working in the field more in depth.

4. COMPENDIUM AND COMPARISON OF THREE MBMAS: A CRITICAL MULTIMODAL DISCOURSE ANALYSIS

In this chapter we will look into Calm, Meditopia and Headspace's interfaces in-depth and conduct CMDA (Critical Multimodal Discourse Analysis). As we have mentioned in our previous chapter, the biggest challenge we have faced when conducting CMDA was to present the gathered data in a rational and understandable way. Because even though the apps we are looking into are all MBMAS and offer the same core function, they inevitably differ in terms of their interface architecture and their approach to delivering their core functions. Think of the apps you use on a daily basis. Like Vimeo and Youtube; or Spotify and Apple Music. They offer the same core function too; user experiences; and comparing them methodically, would not be as easy as one would assume.

Similarly, even though Calm, Headspace and Meditopia are all MBMAS and offer the same core function, their approach of delivering the user experience are quite different from one another. To be more clear; even the number of primary tabs of these three apps are different. As seen in the figures in the next page; Calm has four primary tabs (Figure 4.1), Headspace has three primary tabs (Figure 4.2), Meditopia has five primary tabs (Figure 4.3).

One might question why this becomes an issue and a challenge in our context. Generally speaking, CMDA generates very detailed in-depth analyzes. In the context of interfaces, a journal article can be written via CMDA with even one screenshot of a platform. In contrast, the number of primary tabs we have is twelve; and these are just the initial views of these tabs; since these are mobile apps, users can also scroll up and down too. Full views of the primary tabs consisted of 68 screenshots; whereas if we include the screenshots of secondary tabs, and features we are speaking of hundreds of screenshots. In addition we have also gathered screen-recordings of certain usage scenarios. In a nutshell, we are not conducting CMDA on a small sample. So, presenting these data in a rational and understandable way required some contemplation. Eventually, we have adopted Pauwel's (2012) multimodal framework; and implemented it in four phases.



Figure 4.1 Initial Views of the Primary Tabs of Calm: Homepage, Discover Tab, Scroll Tab, Profile Tab



Figure 4.2 Primary Tabs of Meditopia: Homepage, Discover Tab, Sleep Tab, Music Tab, Profile Tab

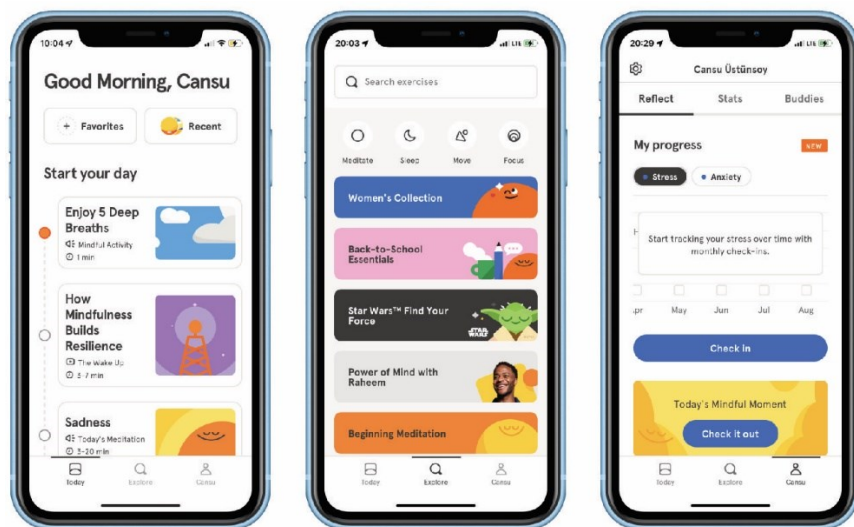


Figure 4.3 Initial Views of the Primary Tabs of Headspace: Homepage, Explore Tab, Profile Tab

First thing we are going to present in this chapter is our analysis of initial impressions. Our aim in this phase is to give the readers (who may be people that have not seen these applications before) an idea about how these apps ‘look and feel’ at first glance. Our focus at this phase will be mostly on the homepages; however we will also briefly explain whether what we observe in the homepages have continuity throughout the other primary tabs or not. This phase is actually a preceding to the actual analysis (Pauwells 2012).

When we are describing the initial impressions we will also note salient features down. It is important to note that these salient features will not be analyzed in-depth in this phase. According to Pauwells (2012) this phase is about ‘collecting and categorizing present and absent features’ based on ‘theoretical insights or a hypothesis’. In other words, this is a phase where we introduce salient features to readers to give readers an idea about what is coming next in our further analysis.

Then we will move on to our analysis of formal choices. We will look into the salient features we have noted previously in-depth. In this phase, we will compare Calm, Meditopia and Headspace’s similar features and also discuss their differences. Although, ‘the preceding phases yield some basic insights’ (Pauwells 2012) this phase consists of interpretations on the intentions behind design choices. At this point we will heavily lean on PT literature, to interpret design intentions; in some cases, we will present data gathered with EIs (Expert Interviews) to support our arguments. However, since we will not analyze them in-depth in this chapter. We will briefly present SSI data if they are related to the topics we are discussing and then move on with CMDA.

After we present our observations and interpretations, then we will move onto introducing theoretical discussions. We must note that this chapter offers more of a practical understanding of PT; since we will be analyzing concrete examples, as well as an introductory understanding of an Heideggerian perspective to PT use in MBMAs; Whereas the next chapter offers more in-depth theoretical discussions and cross-readings; since SSIs provided us many different outlooks about the mediation of mindfulness practices (see Chapter 5).

4.1 Initial Impressions and Inventory of Salient Features

We will start our analysis of first impressions with the homepage of Calm and provide brief explanations of its salient features. As seen in Figure 4.4, one of the most eye-catching elements of Calm's homepage is, *the background image*, covering nearly half of the screen. This background is made of a picturesque style moving image consisting of mountains and trees by a lake. Colorwise, it contains mostly shades of blues such as turquoise and navy.

There is also a soundscape complementary to this background; consisting of sounds of slightly wavy water, wind and birds chirping. We also see that there is a logo placed on top of this image. It is made up of the text 'Calm' written in handwriting font; very soft in style, colored white over the contrasting background.



Figure 4.4 Initial View of Calm's Homepage and Salient Features

Up until this point, we can say that these are very safe and valid styling choices for an MBMA. Because all these styling elements induce calmness. Shades of blues induce calmness (see Valdez and Mehrabian 1994). Handwritten fonts are associated with elegance and softness (Doyle and Bottemley 2004; 2006). Similarly the picturesque

style... In many cultures, exposure to nature has been perceived to have a calming effect for ages, but interestingly not only being in nature but also being exposed to views of nature is calming stress too (see Ulrich 1979). As well as listening to nature soundscapes have significant physiological effects on reducing stress (see Alvarsson, Wiens and Nilsson 2010).

Based on these observations, we can say that the picturesque style is very dominant in Calm's homepage; and, it mimics a natural landscape that is quiet and peaceful. This is a salient feature in the context of our study; and we will look to this feature more in-depth in the later phases of our CMDA. But for now, we will move on and look for other salient features.

We see a personalized greeting message right at the bottom of this image (see Figure 4.4). As we will see later in this subsection, it is actually a shared pattern amongst the three apps we are looking into. And if we think about it is interesting to see an app 'greeting us'; we usually do not see any other platforms do it. Therefore we note it as another salient feature.

As we scroll down, we see that the background image fades out as well as the greeting, and we see that the rest of Calm's homepage is dedicated to recommended content (Figure 4.5). It is not so surprising to see recommendations here; since they are a very basic strategy of PT. However, Calm's designers have adopted them to the fullest; to be precise, there were 11 categories of recommendations with a great number of content. As a result, we must note that the homepage feels slightly crowded.



Figure 4.5. Scrolling Down in Calm's Homepage: Samples Showing Gradually Fading Background, Filter Tags Placed Under the and Recommendations

With the recommendation areas, we reach the bottom of the homepage of Calm. Since looking into homepages is enough to give an overall idea of the first impressions of an app; we will not provide detailed analysis of the other primary tabs at this phase of CMDA. However as seen in Figure 4.6 and Figure 4.7; we have conducted similar analyses on the other tabs too; and we will base our discussions on these as we look into these apps more and more in-depth. But for now, our aim is only to introduce readers to these apps. Therefore now, we will move on to the next app we are looking into; Meditopia; and, look into its homepage.



Figure 4.6 Initial Views of the Primary Tabs of Calm: Homepage, Discover Tab, Scroll Tab, Profile Tab

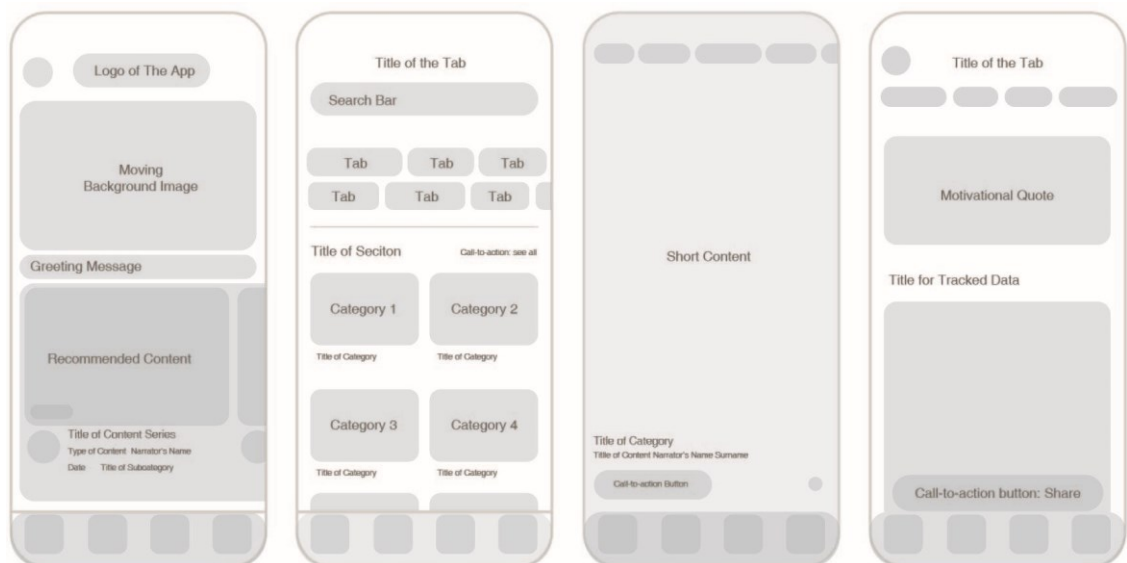


Figure 4.7 Low-fidelity Representations of the Primary Tabs of Calm: Homepage, Discover Tab, Scroll Tab, Profile Tab

When we take a glance at Meditopia’s homepage, one of the first salient features we see is also a *moving background image*. However it is different in style; it is not a picturesque style composition of nature; it is a 3D animation of abstract shapes. At this point we must note that these images are updated everyday; therefore the color palette of the homepage changes day by day. Neither this image nor the rest of the homepage consists of shades of blues or purples; instead we see the design elements are placed on a plain white background and this homepage looks more ‘clean’ compared to Calm’s.

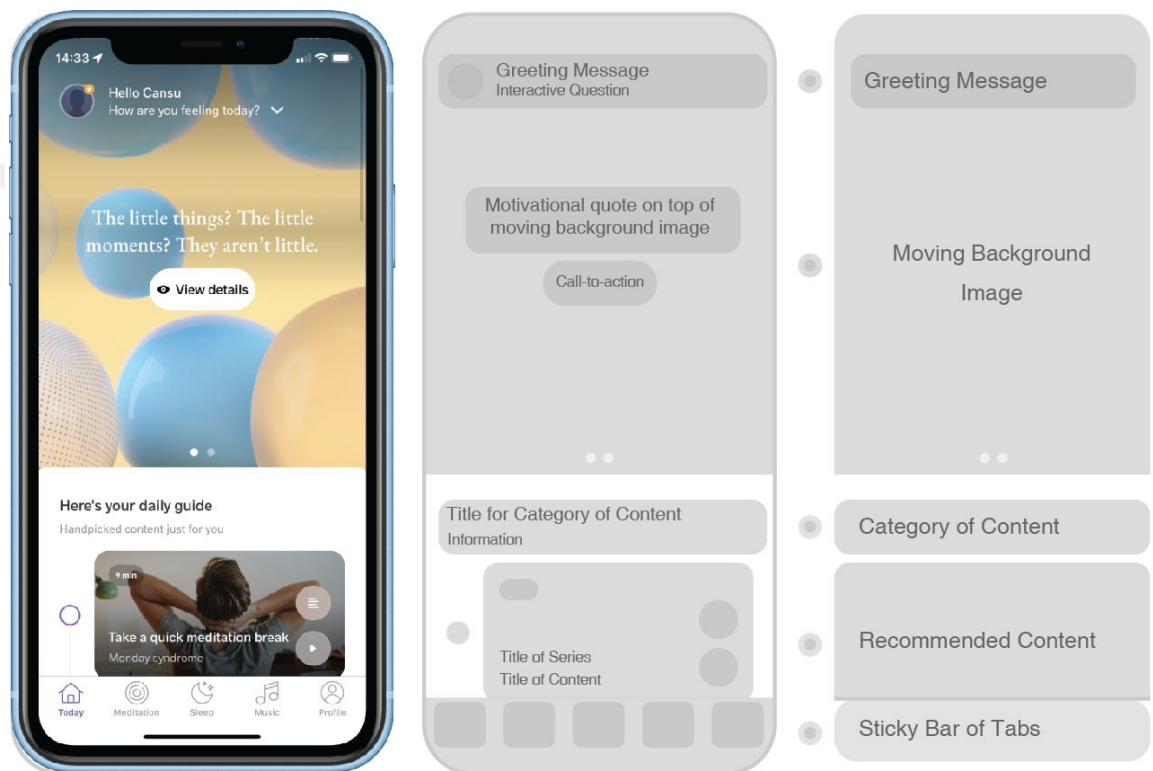


Figure 4.8 Initial View of Calm’s Homepage and Salient Features

When we look into this background closer, we observe other differences between the design choices of the designers of Meditopia and Calm. For instance, we see an inspirational quote placed at the center of this image; and unlike Calm there is no logo placement in the homepage. But one thing these two apps have in common is the personalized greeting message on top of the background. On the other hand, unlike Calm’s message this one is interactive and presents a question: “Hello X (First Name) How are you feeling today?” Users’ homepage feed is personalized based on their answer in this interaction.

As the screenshots we have looked so far show; these apps have some shared patterns; like the use of a moving image as background or a personalized greeting message at the top of the homepage; however we see their approaches are slightly different. As we mentioned earlier, we will look into these features more in-depth in our further analysis; but not at this phase of our CMDA. Now we will move on to look for other salient features.

As we scroll down (see Figure 4.9), again, we see that the background image fades out as well as the greeting message; and we see the recommended content offered to users. In addition to these recommendations, there are other features in Meditopia's homepage; as opposed to Calm's homepage which is fully packed with recommended content. So what are these additional features? For instance we see a repetition of the daily motivational quote that was placed at the top of the page with the title 'Daily Wisdom' (Figure 4.9 at the bottom of the third screenshot). We see another feature titled 'Build a Habit' (Figure 4.9 at the top of the fourth screenshot), and lastly we see a section showcasing the live number of people using the app at that current time (Figure 4.9 at the bottom of the fourth screenshot). These are features that we, as users, are not used to see in apps. Think of an app you use on a daily basis, Youtube for instance, it does not offer a feature with the sole purpose of offering strategies to build a habit of using the app, does it? At least not this transparently. Therefore we also note these as salient features to look into.

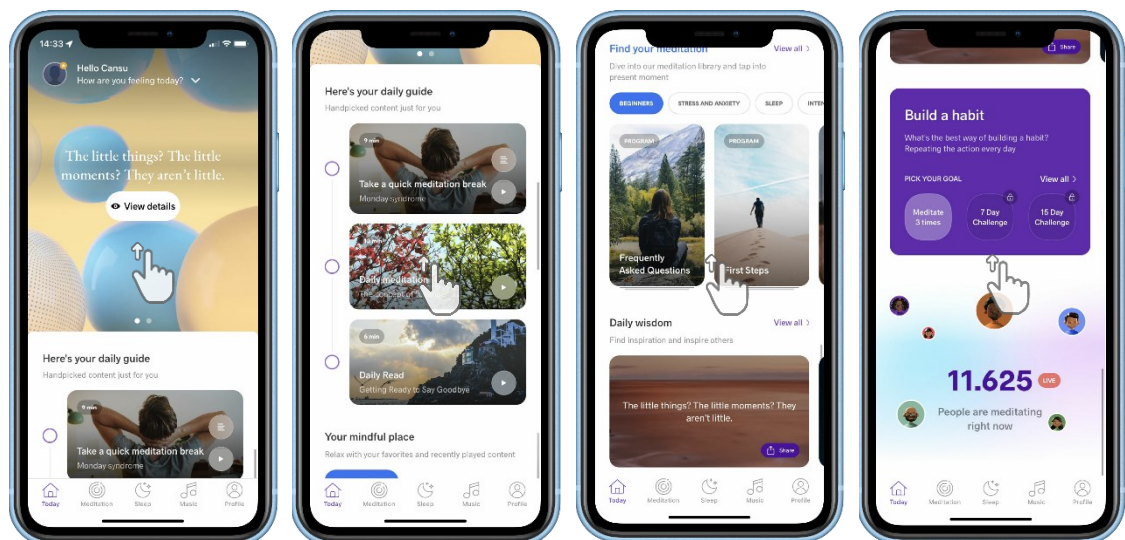


Figure 4.9. Scrolling Down in Meditopia's Homepage: Samples Showing Recommendations and Other Features

With this last section we reach the bottom of the homepage of Meditopia. As readers might have noticed; Meditopia’s homepage feels just a little more put together than Calm. Although it is not minimalistic; it looks less cluttered.

However, when we look into the other primary tabs of Meditopia; we see that this ‘clean look’ is not consistent throughout the other tabs (see Figure 4.10 and Figure 4.11). The primary tabs, other than the homepage, actually consist of shades of purples and blues like Calm. Still, since the majority of the salient features are presented in the homepage of Meditopia, our analysis we will provide will be majorly based on the homepage.

With these observations, we finish looking into Meditopia’s initial impressions analysis and inventory of salient features. Now, we will move on to our next study case; and look into Headspace’s initial ‘look and feel’.



Figure 4.10 Initial Views of the Primary Tabs of Meditopia: Homepage, Discover, Sleep, Music, Profile

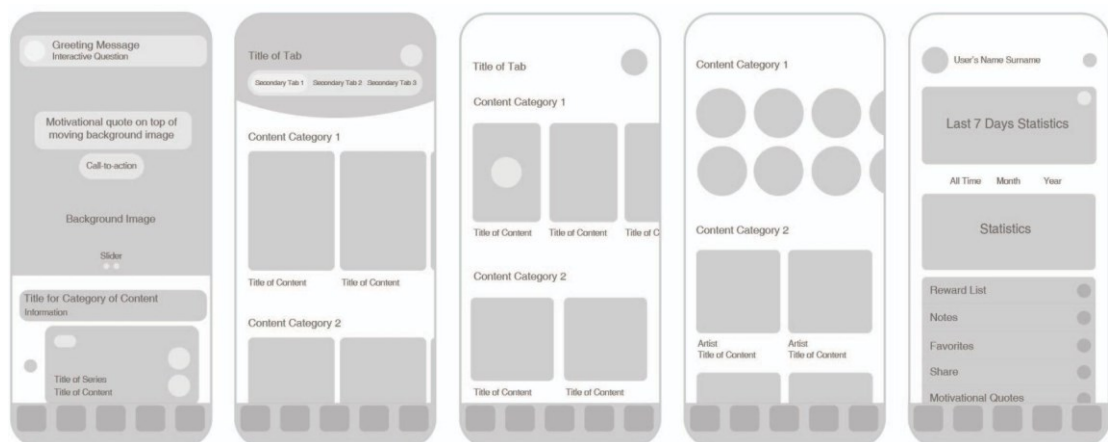


Figure 4.11 Low-fidelity Representations of the Primary Tabs of Meditopia Homepage, Discover, Sleep, Music, Profile

At a first glance; we see that Headspace does not have much in common with the other two apps. As seen in Figure 4.12, Headspace’s homepage is much more minimal than Calm and Meditopia. There is no logo, no moving background image, no soundscape, and no inspirational quotes. The list can go on; even the recommended content is significantly lower in number compared to the other two apps.

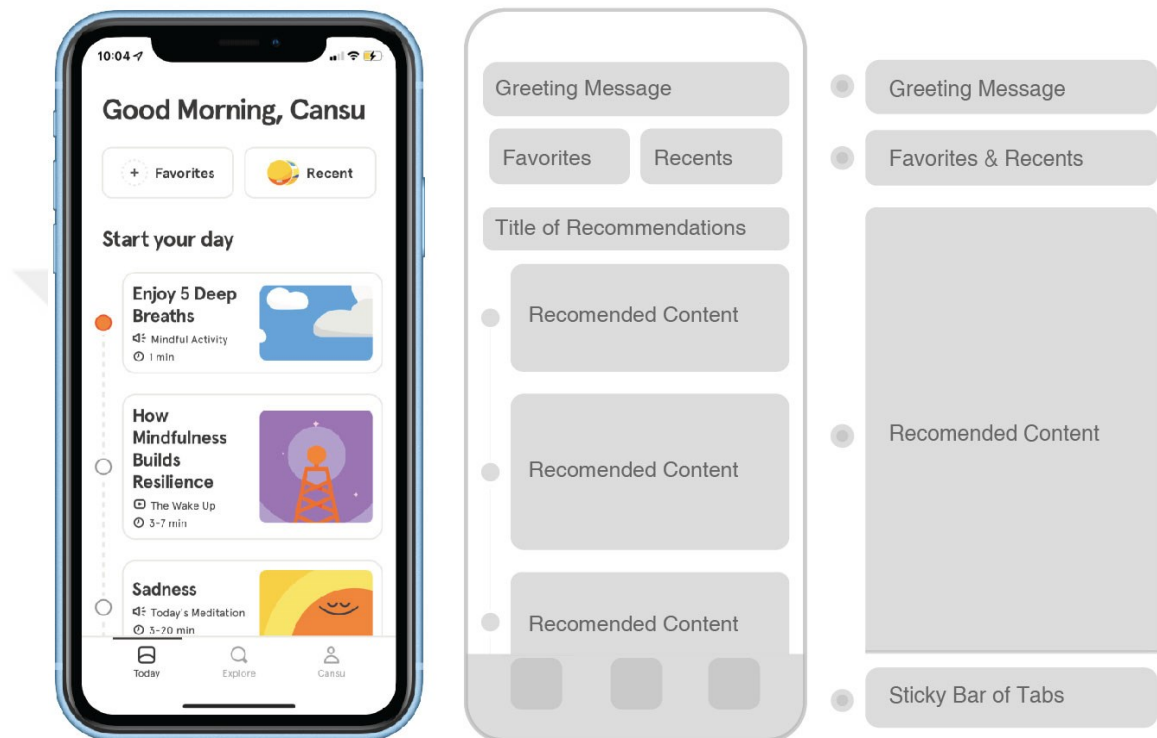


Figure 4.12 Initial View of Headspace’s Homepage and Salient Features

Since both Calm and Meditopia offer moving images covering nearly half of the tab in their initial views; the plain white background of Headspace seems like a very dominant styling choice; a clean looking almost ‘hygienic’ choice to keep things simple. The lack of movement, the lack of color indicates that there is minimal effort to guide users’ attention. However this does not mean Headspace’s visual language lacks personality.

Even though there is a very low amount of color usage; the colors used are shades of orange and yellow which specifically make up the logo of Headspace. So even though there is no direct logo placement in the interface; we still see subtle clues with the coloring and the cartoonish style of visuals that we are *in* the Headspace app. The lack of sound embedded in the interface; is no coincidence either; it is a choice complementary to Headspace’s minimal approach in style.

But if we move on from these stylistic choices and look into functionality; we see Headspace has some things in common with the other two apps. Similar to the other two; Headspace also offers a personalized greeting message (see Figure 4.12). It also has a significant amount of space reserved for recommendations; since there is no background image taking up space, almost the entire homepage is reserved for them (see Figure 4.12). On the other hand, if we scroll down we see that the amount of these is significantly lower in number: only 3 categories and 5 content in total (Figure 4.13).

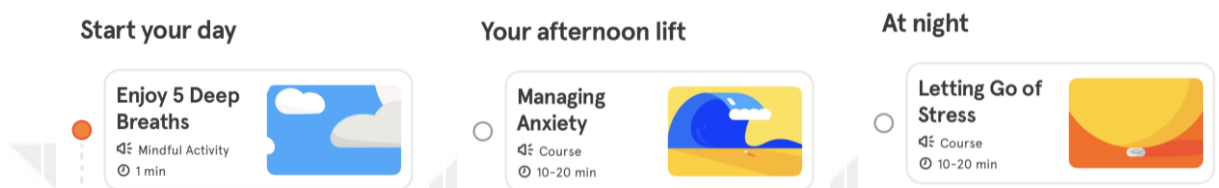


Figure 4.13 Sections of Recommendations in Headspace's Homepage

Such a low number is important in our context because we know recommendations are great persuaders; therefore we note this for further contemplation. But for now, we can note that it is a sign of minimalistic approach; not just represented in stylistic features but it is the overall approach to functionality too.

Headspace does not overwhelm users by offering endless content in its homepage; instead offers a couple selections; as opposed to recommending 11 different categories with endless content.

In essence, the overall feeling that Headspace's homepage offers is simplicity. Users can not spend hours and hours scrolling down viewing content; because there is not much to scroll down; it just takes a second to reach the bottom of the page. In a sense we can say that the app is *not trying too hard*, in a good way.

If we look into the other primary tabs (see Figure 4.14 and 4.15, in the next page) we see that overall style is pretty much consistent throughout the app.

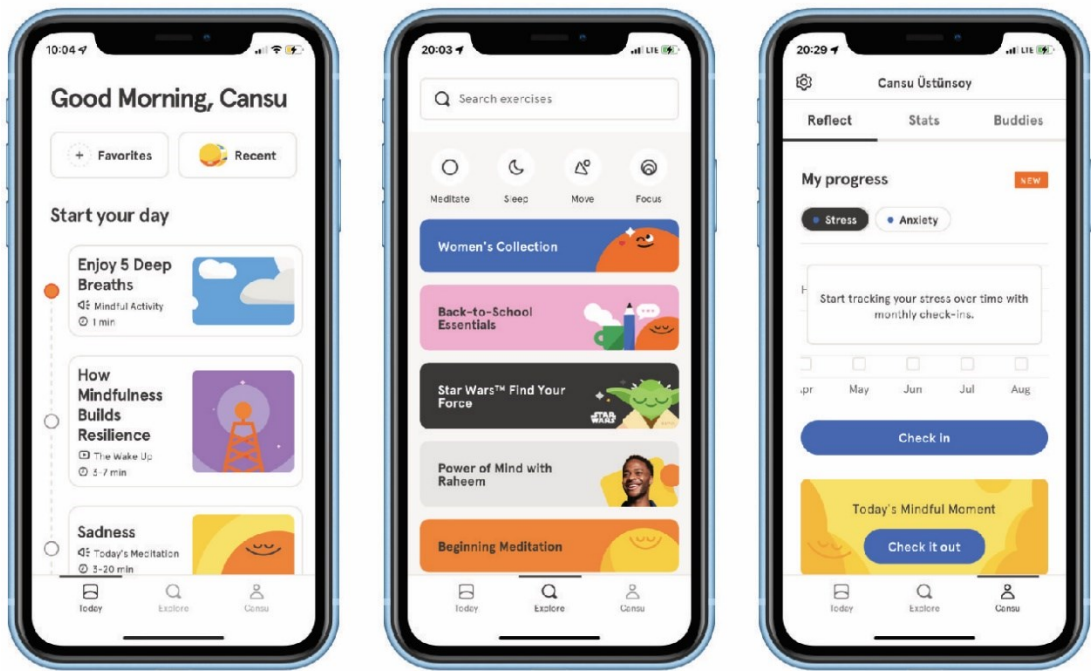


Figure 4.14 Initial Views of the Primary Tabs of Headspace: Homepage, Explore Tab, Profile Tab

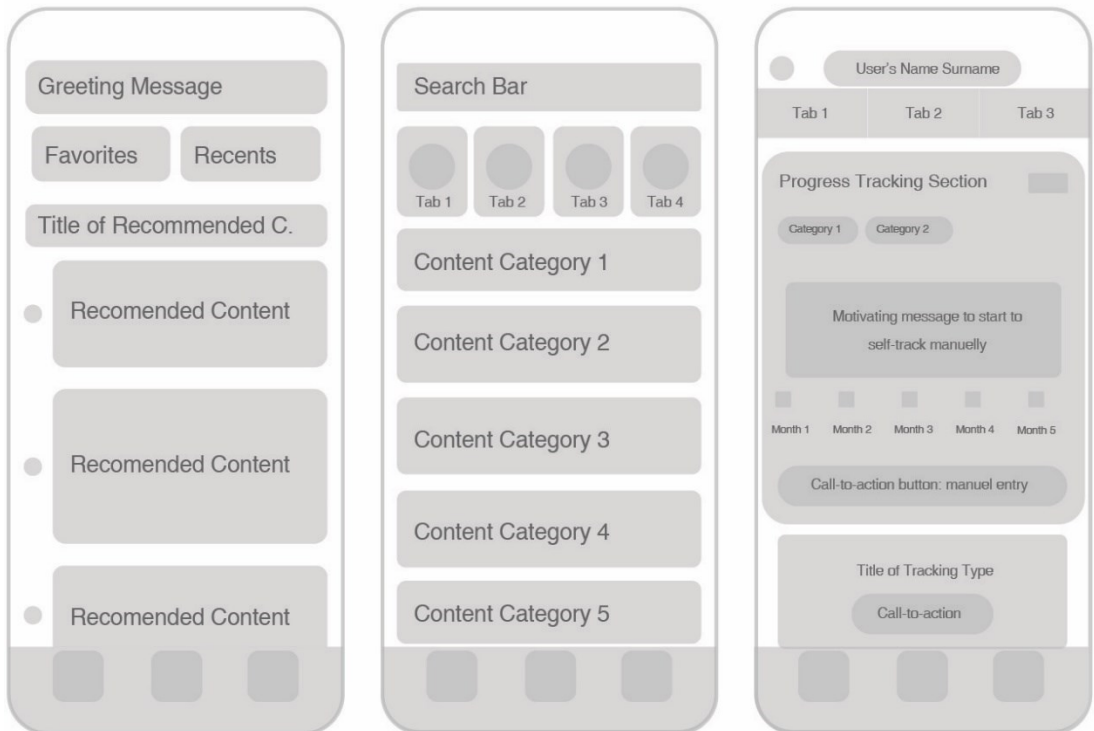


Figure 4.15 Low-fidelity Representations of the Primary Tabs of Headspace: Homepage, Explore Tab, Profile Tab

4.2 An Analysis of Spatial Design Elements: Persuasive Technologies as Media, Spatiality and Presence in Virtual Space and Actual Space

When we briefly looked into Calm, Meditopia and Headspace's homepages in our first phase of CMDA; one of the important things we noted was the use of moving background images in Calm and Meditopia, and the lack of it in the case of Headspace. To remind our readers, let's look into the comparison of the homepages of these apps in Figure 4.16.

When we look into these three apps' homepages side by side; it is very obvious that Calm and Meditopia's designers reserved nearly half of their homepage to these features; whereas designers of Headspace did not. In essence, the use of such images adds an element of spatiality to Calm and Meditopia's homepages; whereas the plain white background of Headspace keeps things simple. Both the adoption and the lack of such dominant features are significant for our study. Therefore we have noted them as salient features to further contemplate on.

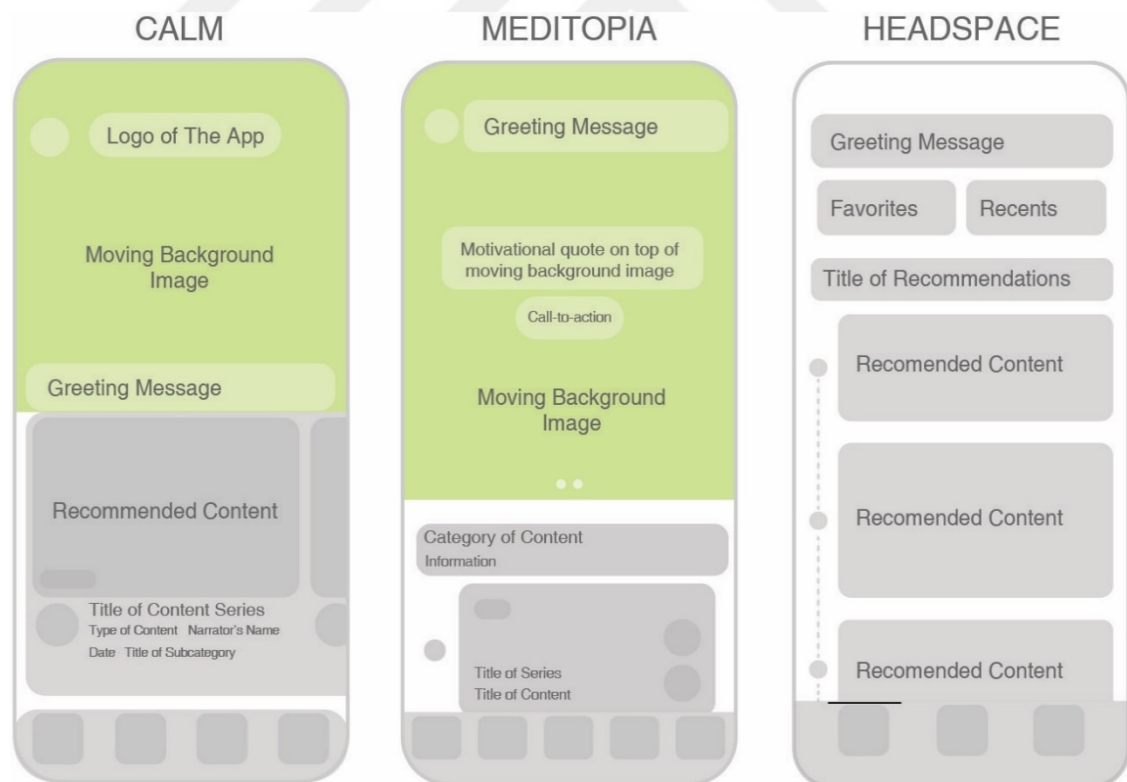


Figure 4.16 Positioning of the Moving Background Images in the Homepages of Calm, Meditopia and Headspace

When we were conducting an affective analysis, in our first phase of CMDA, we briefly described the intentions behind these stylistic choices; that need to complement PT, but in essence, they do not tell us much about the functionalities of these features. In the context of PT we are much more interested in the functionality of these apps. Therefore now we will take a closer look into these features in this subsection. We will start with taking a close look at Calm’s homepage (Figure 4.17). We have noted this earlier, this background is customizable; as seen in Figure 4.17 and 4.18 at the left hand corner there is a button that enables user to change this background’s settings.

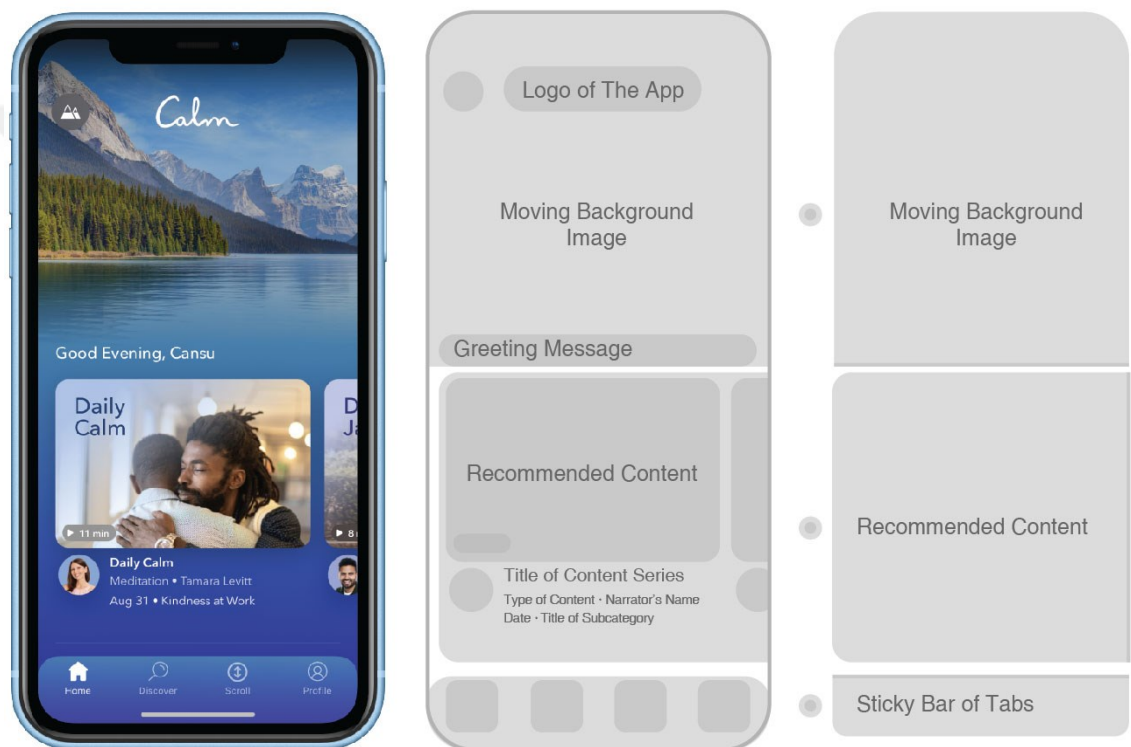


Figure 4.17 Initial View of Calm’s Homepage and Key Features



Figure 4.18 Customizing Background and Soundscape, An Example of Changes in the Color Palette

As seen in Figure 4.18, when we tap the button on the left hand corner, we can see that users have a detailed amount of control over these. At the top we see that Calm refers to these backgrounds as ‘Scenes’ as the title suggests. As seen in Figure 4.18; selecting one of these scenes not only changes the background but it changes the color palette of the app; as well as the complementary background.

It is important to note that we do not usually see such options on apps. This level of customization is not something we are used to. It is a good point to think of apps we use on a daily basis. Like Youtube, Instagram, or Spotify... Many of the mainstream platforms do not offer such customization options that can change the overall color palette or sound experience of an app. Sometimes, we see dark mode options in apps that enable users to switch to darker modes for reducing eye strain at night; but other than that, we do not usually see an option to change interfaces color palettes from blues to purples or oranges.

It is also important to note that when we tap on the background, these visuals become fullscreen. In addition, users also can (if they choose to) set a timer in the settings menu; and listen to the soundscapes even when they close the app.

In essence, this feature resembles a personal, customizable space; mimicking quiet and peaceful natural landscapes, where users can practice their mindful activities. Since these apps are mostly focused on audio-based narrated content like guided-meditations, it is interesting to see that Calm also offers an experience without any narration.

Similarly, we have also seen the use of a background image in Meditopia too. But unlike Calm, users do not have any options to change these backgrounds or the color palette that compliments these. But, there is an inspirational quote placed at the center of these images.

Users can sift through this feature by tapping on view details (Figure 4.19) just like wandering around a physical space. As seen in Figure 4.20, sometimes these quotes belong to people who are well known in mindfulness circles. For instance the first quote belongs to Jon Kabat-Zinn who is well-known for his academic work on mindfulness practices and is known as one of the researchers who paved the way for the academic studies of mindfulness. Other times, these quotes are anonymous.

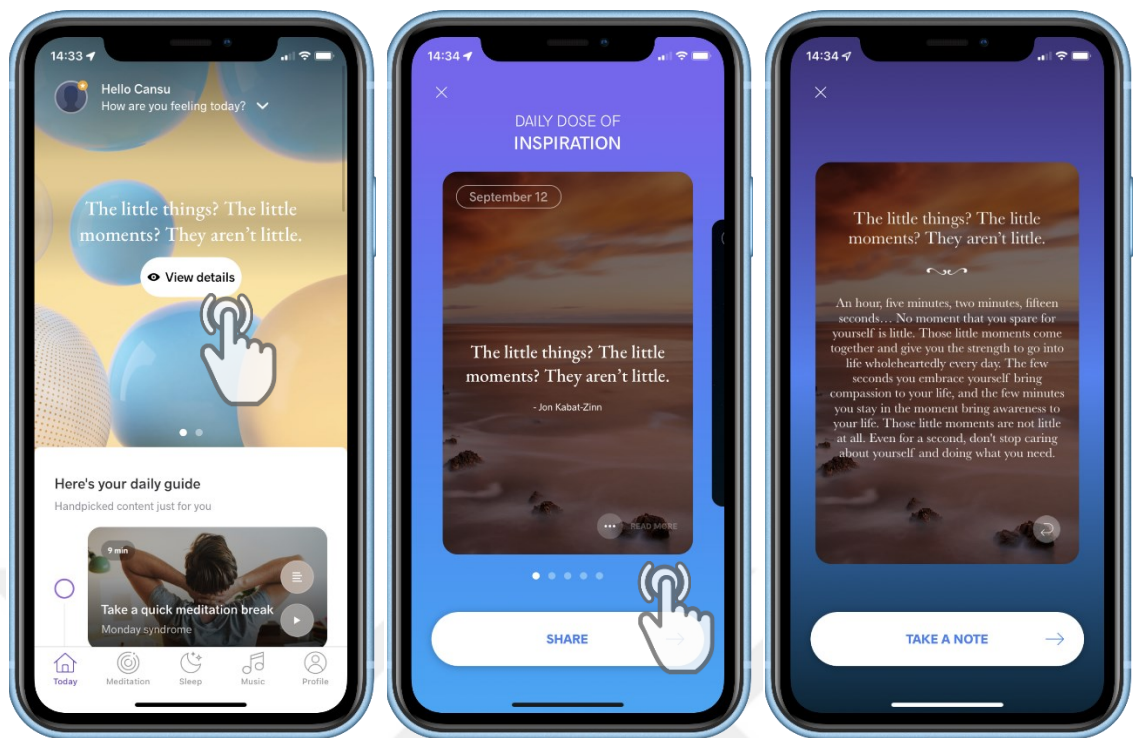


Figure 4.19 Meditopia’s Salient Features in the Homepage: An example of How Users Can Interact With The Daily Inspirational Quotes Titled ‘Daily Dose of Inspiration’

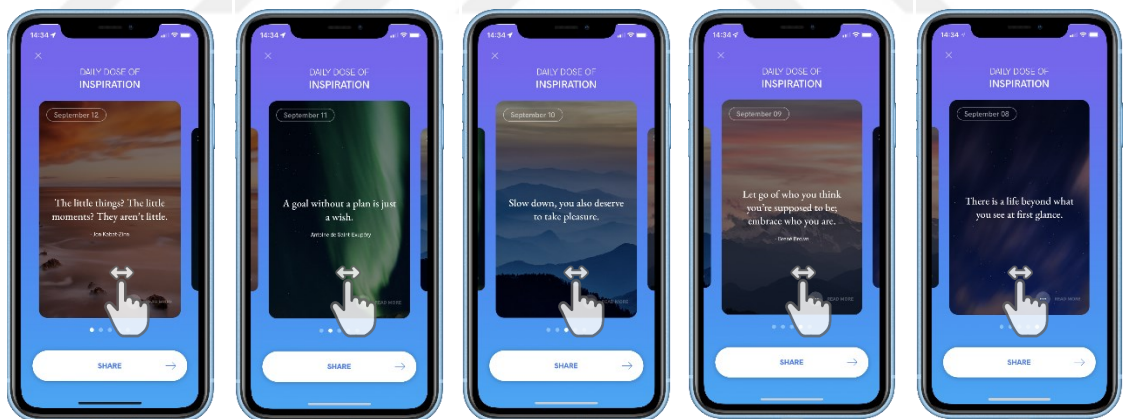


Figure 4.20 Meditopia’s Salient Features in the Homepage: Viewing Previous Inspirational Quotes

We observed that Calm’s feature resembles personal space dedicated to practicing mindfulness; but in Meditopia we see the focus is more on learning rather than training. This feature does not offer an experience of practicing mindfulness; but offers different perspectives on mindfulness from people all around the world.

As a side note, we have noted that Headspace’s designers did not include background images in the homepage –or in any of the other tabs– or any other spatial elements that

might correspond to the features we have observed in Calm and Meditopia. As seen in Headspace's homepage is mostly reserved for recommended content; and we do not see any other features that indicate some sort of spatiality.

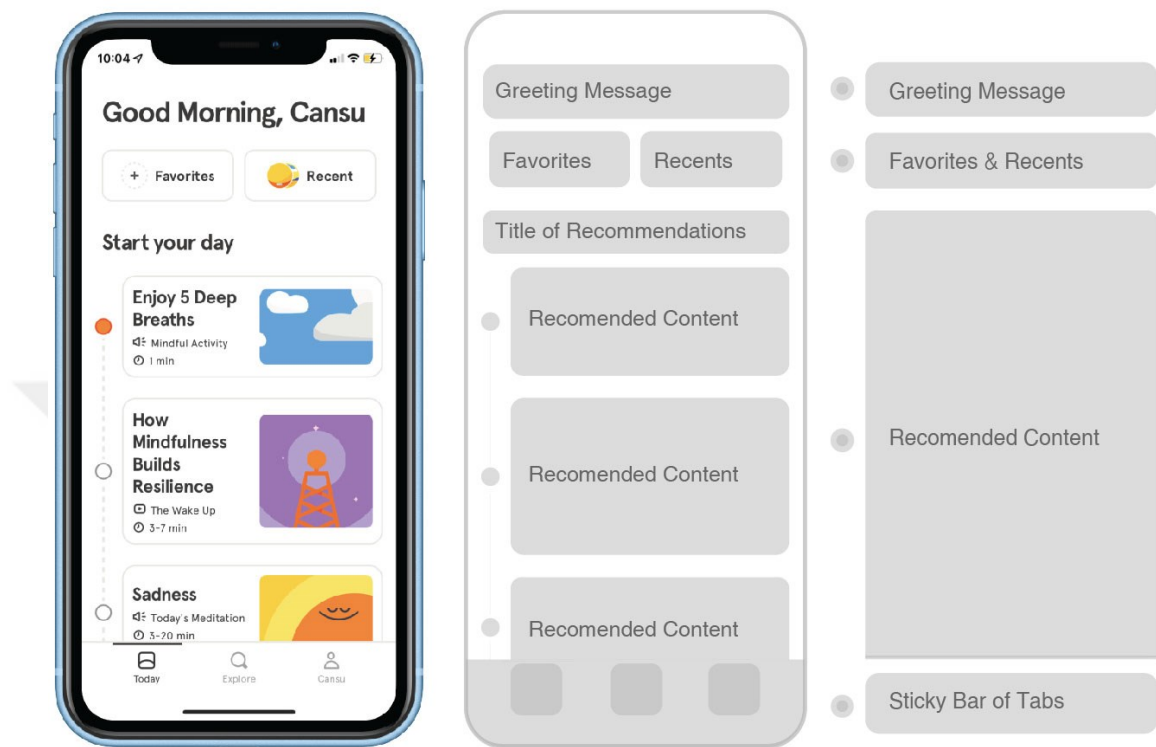


Figure 4.21 Initial View of the Homepage of Headspace and Key Features

In essence, it looks like designers of Calm and Meditopia have chosen to embed a strong spatial element in their user experience; not just stylistically but also functionally by offering interactivity. Headspace's designers, on the other hand, have chosen not to include such an element. Why do we see these options on MBMA's? In what way does including spatial elements embedded in an app might contribute to mindfulness training? Do these features enhance persuasiveness? Do they enhance calmness? In this subsection we will search for answers to these questions.

4.2.1 PT as media and persuasive virtual environments

When looking into these background images, looking them as examples of *PTs in form of media* (see Fogg 2003) as opposed to other forms of PT; would help us to form a better understanding. What differentiates PT in the form of media, is the spatiality aspect. They

offer environments that provide experiences of ‘first-hand learning, insight, visualization, resolve’; promote ‘understanding of cause/effect relationships’ and motivate ‘through experience, sensation’ (Fogg 1998).

What we are essentially observing in Calm and Meditopia’s homepages, are simplistic virtual environments. Readers might be surprised as we refer to these images as virtual; because landscape views on a smartphone might not be the first thing that comes into mind, when speaking of virtuality. Common understanding of virtuality consists of heavy VR sets, and immersive 3D environs as virtual realities (Munster 2011a); which do not resemble what we are talking about at all.

But the thing is, as we discussed earlier these views we are referring to are highly interactive and mimic physical spaces; they *can be stylized* just like a physical space, you can *visit* them and *wander around*; and discover new things *in* them, they change as *the time passes by*. In addition they offer digital environments to practice mindfulness itself.

Calm’s feature offers a virtual space; that feels quiet and peaceful; a virtual space for practicing mindfulness. And we have a highly functional feature here; this level of customization, seems to mimic how we act in our physical spaces; and reveals the app as something to decorate, something to customize, something that belongs to us. Whereas Meditopia’s feature seems to mimic a physical studio one can enroll and learn mindfulness practices; a virtual equivalent of a universal school of yoga or meditation, consisting of many teachers from all around the world. These qualities make them something different from an image or a video; even though they might not be the first thing that comes to mind as virtual, they are virtual spaces. Simulations or virtuality do not have to consist of heavy VR sets or be as ‘realistic’ as we expect; in fact simplistic versions can actually make them more persuasive. Fogg explains in these words:

“Sometimes the surroundings are immersive, as in high-end virtual reality applications. More often, the virtual environments are much simpler and use basic technology. [...] simple systems can be engaging because *immersion is a function of the mind, not of the technology* [emphasis added]. In fact, in learning simulations, some argue that realism can detract from the learning experience.” (Fogg 2003, 69)

In other words, virtuality is neither about the equipment enabling the experience, nor the fidelity of the virtual reality; our minds are doing most of the work. According to Fogg these

types of environment simulations “create a virtual world into which people must mentally transport themselves.” (Fogg 2003, 77)

Virtual environments have great potential to be persuasive; because, they can “influence people by providing vicarious, first-hand experiences; by prompting insights into cause-effect relationships; and by allowing for cognitive and behavioral rehearsal” (Fogg 1999). Even though this observation was made in one of the first papers of the field; there are only a handful of studies exploring virtuality PT. One of the notable ones in the context of our study is the study of Chow et al. (2017) exploring virtual reality’s potential in health care; or Fox, Christy and Vang’s study (2022) exploring the experience of presence in persuasive virtual environments. As you can see, these are empirical studies that are focused on very specific cases demonstrating how different variables in virtuality play a role in persuasion.

In essence, there are no foundational works to consider virtual environments from a more general PT perspective; there is no direct principle that suggests including a virtual experience would increase the persuasiveness of a technology, nor a study that examines virtuality’s general role in persuasion. One of the earliest observations in the field still holds true:

“Creating such environments [virtual environments of discovery] is not a single persuasive strategy. Rather, when done well, these environments combine many strategies into one coherent experience.” (King and Tester 1999)

Since there are no direct PT principles that can guide us here, there is no direct way to interpret designer intentions. But we can get clues of other persuasion principles embedded in these features, and try to understand how these features play a role in overall persuasiveness.

In Calm’s case, empirical data shows that the background image is highly customizable; so we can start from that point. In terms of PT, we know that customization and personalisation are highly important both for successful persuasion attempts and for long term adoption of PT. People tend to be more prone to persuasion if they *perceive* the computer they are interacting with as having similarities to themselves. Empirical research shows that even naming a computer a ‘teammate’ and wearing matching color accessories with the interface –without any actual other changes in the interface structure

(such as the architecture or style etc.); people perceive the computer to be ‘nicer’; they perceive it to be ‘smarter’; they perceive it to be easier to use, as opposed to people in control groups (see Nass, Fogg and Moon 1996).

Phenomenologically speaking; ‘Scenes’ feature that Calm offers provides a very flexible experience but also holistic; background can be changed, soundscape complementing to the background changes regardingly; the color palette changes. Juxtaposed with the empirical data we have presented above (see Nass, Fogg and Moon 1996); we can make sense of it. Customizable, personalizable, flexible; these all mean one thing at their core: adaptive. In the context of persuasion the empirical data is actually not very surprising; it is only common sense to assume we are prone to be understanding and adaptive if we perceive the other party is too; if we perceive that they are not, then we also have the tendency to be rigid.

It is important to note that this level of customization is offered complementary to a virtual spatial experience; not just any other feature. If we take this as a feature mimicking a personal space; it seems it is perfectly reasonable and natural for someone to choose how their personal space is going to look like. If we think about it; we do it with our physical spaces all the time; we decorate our homes, our backyards, even public spaces.

On the other hand Meditopia’s feature is much more easy to interpret; since it corresponds to the basics of PT, in a much more obvious way: it consists of motivational quotes that are updated daily. We know that motivation is one of the three criteria that needs to be fulfilled in order to change behaviors and attitudes (see Chapter2; see also Fogg 2009); in order to build a new habit. And in the case of MMBA’s, this new habit is practicing mindfulness daily. Therefore we can easily interpret this feature as an attempt to increase motivation.

4.2.2 Perceptions of spatiality in relation to virtual, actual and real

Since we have established that these are persuasive virtual environments; and discussed possible designer intentions behind them from a PT perspective, now we can move on with our discussions about the experience these features offer.

In Calm, we see that one can experience the sounds and visuals of a mountain by a lake, or a rainforest, or a fireplace; with one tap. In Meditopia, we see that a user can check the daily changing motivational quotes; read the teachings of mindfulness practitioners from all round the world, and even read scholars' perspectives on mindfulness too; again via one tap. At this point one can easily question whether the experience these apps provide are authentic or not. We can get more specific here and we can look into the 'Scenes' feature of Calm (Figure 4.22): Does it give 'an illusion of a world that is no world' ?



Figure 4.22 Examples of full size Calm 'Scenes'

Some might argue that it does; people may be sitting somewhere completely contrasting these scenes; somewhere chaotic like a busy public transport line or their office; and simply enjoy the 'view' and 'sounds' of a beautiful lake, through a screen. On the other hand, a counter argument would say that these people can close their eyes and imagine they are somewhere different too: "Why should not imagining being somewhere calmer be an authentic mode of being? Mindfulness meditations are usually done with eyes closed anyways..."

In the specific case of Calm's feature 'Scenes', we must note that one can easily imply it is a form of escapism mediated via technology. Because the picturesque style is often criticized in such a manner. Some (see Mitchell 2002) even argue that picturesque style can very well be considered as commodification of nature; a regenerated form of capitalism itself. By reproducing a space already existing in nature via technology, we not only commodify it but we make up and market a use-value; which then expands into a semiotic value (see Mitchell 2002). For instance in Calm's case, with the Scenes feature;

this use value can be considered to be a space to relax; it may very well be argued that these visuals of nature are being commodified by reducing them to means to an end-goal.

So, it is easy to argue such an action isolates us from our ‘real’ surroundings; on the other hand, a counter-argument would suggest that these views can be considered as virtual surroundings which in essence does not make them any ‘less real’ (Levy 1998).

At this point, it might be beneficial for our discussion to explore the concepts real, actual and virtual briefly. Although this can be discussed in-depth, for the sake of our study I would keep it as simple as possible; but readers can check the essay *Virtuality: Actualizing Bodies, Abstracting Selves* (Munster 2011a) for an in-depth view.

At the beginning of the empirical research concerning virtuality, in the 1990s, the common conception of virtuality itself was that it is something separate from reality; as if virtuality is unreal. As a result, the virtual prosthesis –such as the predecessors of the VR set we are all familiar with– were perceived as tools to enter an ‘alternate’ or ‘out of body’ experience (Munster 2011a). Munster explains in these words:

“The virtual, more than any other quality or dimension associated with digital technologies, has promised to leave the body and its ‘meat’ behind, as minds, data and wires join together in an ecstatic fusion across the infinite matrix of cyberspace [emphasis added]”. (Munster 2011a)

It is important to note that in the 1990s, these discussions were highly theoretical and perhaps only useful for a handful of specialists because the technology supporting virtuality was in its early phases. However, as the technologies that enable virtuality developed, and as they have become parts of our daily routines these concepts have become much easier to understand; they have also become more relevant than ever.

In essence throughout the years, we came to the understanding that virtuality is real. It is *not opposed* to reality, but it is opposed to actuality; whereas the opposing counterpart of reality is possibility (see Munster 2011a; Levy 1998). Virtual is as real as the actual; the latter is just more concrete. And we have also come to the understanding that we do not really *leave our physical bodies behind* when we are interacting with virtuality; instead, we perceive our *virtually perceived and felt body* (Murray 2016) as an extension of our *actual lived body*.

So if we go back to our study cases, one being immersed into Calm's visuals and soundscapes; does not mean it is an unreal experience; whether it be relaxation or calming down there are consequences on one's actual lived-body. As we have mentioned earlier, the physiological effects of exposing one to views of nature (see Ulrich 1979), as well as listening to nature soundscapes (see Alvarsson, Wiens and Nilsson 2010) has been empirically tested; and they do in fact reduce stress. In essence the virtuality aspect does not directly indicate that it is an inauthentic experience.

4.2.3 A Heideggerian reading of use of virtual environments in MBMAs

If we were to bring a Heideggerian point of view to the discussion at this point, things would get even more interesting. We know that Heidegger criticized traditional media technologies (see 1966 [1959]), arguing that they distort one's perception of authentic experience. He argues traditional media technologies take people to the 'realms of the imagination, and give the illusion of a world that is no world that is no world' (1966 [1959]). The reason why he refers to them as illusionary worlds is because they guide people's attention to something inauthentic to themselves (see 1966). From this point of view, contemplating on what Heidegger would think of our these technologies is very interesting; in the context of MBMAs.

On the one hand, we know that PTs seek more attention than their predecessors; traditional media. This raises questions: Does this mean they distort our perceptions of being even more? Does this mean the illusion of a world that is no world, is even stronger with new technologies? On the other hand, MBMAs, even though they are PT, we have seen that they use virtually to support mindfulness practices. So, would this mean these new platforms distort our perceptions of being less; maybe even do not distort at all? To have this discussion, firstly we must form an in-depth understanding of Heidegger's ideas on spatiality.

According to Heidegger, spatiality is a fundamental aspect of human experience; he even refers to existing as being-*in-the-world* [emphasis added] (see 1962 [1927]). Being-in-the-world is a translation of the original German word Heidegger uses: Dasein. 'Da' means 'there' in German, and 'sein' means 'to be'.

Choosing to refer to existence as ‘being-in-the-world’, instead of simply calling it existence, of course has reason behind it. Our common conception of existence consists of us and the surroundings consisting of others. In other words; we think of ourselves as separate autonomous beings from our surroundings; *as if the world surrounds us*. One of the beauties of Heidegger’s philosophy is rewiring this conception. *We are not separate from the world, we are the continuity of the world*. The world does not surround us, instead we are *in* the world, meaning we are a part of it. There is no such thing as a separation between the world and us; our bodies’ boundaries are not where the world ends and we start (see 1962 [1927]).

For Heidegger, one can be either in the mode of an authentic being-in-the-world, or inauthentic. Authentic being-in-the-world is simply perceiving life as it is. But it is important to note that perceiving life as it is includes perceiving ourselves *as we are, as well as* our surroundings *as they are*. In other words, experiencing what is going on around us and away from us without experiencing what is going on *in us* is not a mode of authentic being... And vice versa, of course. Only and only, by being open to the experience of both, we are in the mode of authentic being.

With this basic understanding, we can develop a better understanding of Heidegger’s critique of traditional media technologies. The concrete examples he uses, the radio, the television, or cinema are no accident. When you think of these technologies one thing that stands out is how they mediate complex narratives. Think of listening or watching news on the radio or television. There is always some dramatic event covered on the news, that is significant for the societies we are living in but somehow not necessarily significant or as dramatic for us individually; at least not as much as it is portrayed. Hypothetically speaking, most of the events we are watching on the news do not happen in our neighborhood, our city or in some cases in our country. These events happening far away definitely have the potential to have an effect on us or on our futures. But focusing solely on them has the potential to make us forget about what is going on in our immediate surroundings and what is going on in us.

They focus our attention in a way that we do not attend to ourselves anymore. We all have things going on in our lives; we all have our individual news one might say, good as well as bad. It might be school, career, relationships, family or health; loss or gain; we are all

on different journeys. Put simply, when watching a movie, we forget these other aspects of our lives. This is my basic interpretation of Heidegger's critique of media technologies.

In contrast to these examples, when immersed in one of the scenes Calm offers, we would not lose touch with our lives in the same manner. Because the images we are looking into have much simpler narratives; even less attractive, one might say. These narratives are not attraction seeking; as opposed to news on the television or radio, or movies that are edited countless times to find the sweet spot for an immersive experience. Therefore, I we can not criticize them in the same manner. They are easier to *immerse into and out*. They are likely to consume peripheral attention; which makes these features good examples of Calm Technology.

In essence, Calm's 'Scenes' feature does not make us lose touch with our groundedness in our lives; on the contrary, even though it is a virtual space, it is a space that offers a calm environment that one can utilize to turn to self. Here we see how technology mediation can reveal mindfulness training in a different form. Many people who attend face-to-face mindfulness training do not attend sessions on a mountain, or in a rainforest or besides a fireplace... For starters people might not have access to these places. For example, it is very unlikely for me to practice mindfulness in a rainforest since there are no rainforests in Turkey. Such virtual environments do not seem to be an escapist form of content consumption; since they encourage turning to self. They are not embedded in these experiences to entertain and amuse, so that users can have a break from their reality; instead they are embedded into these experiences to support having a clear look at life.

We can have similar arguments about , virtual learning environment, 'Daily Dose of Inspiration' too. It is again very unlikely for many to get face-to-face mindfulness training from Jon Kabat Zinn, but anyone interact with his teachings and reflect on them, via technology. Again, having a virtual option makes one realize that not having physical access to the people does not mean they are out of reach. Gathering teachings from different people, and anonymous sayings make it possible to choose from possibilities.

At this point we must note that there is actually one other feature Meditopia offers that takes the concepts that we have discussed so far to a next level: and it is a simple feature, not even interactive. It simply showcases the number of people using the app.

Readers might be confused and might ask: How is this feature related to our discussion here about virtuality, the role of spatial design elements and the overall experience? To clear up these questions let's have a look into this feature to have a better understanding. Let's assume we are using this app; see this number showing the number of people meditating via using this app (see Figure 4.23).

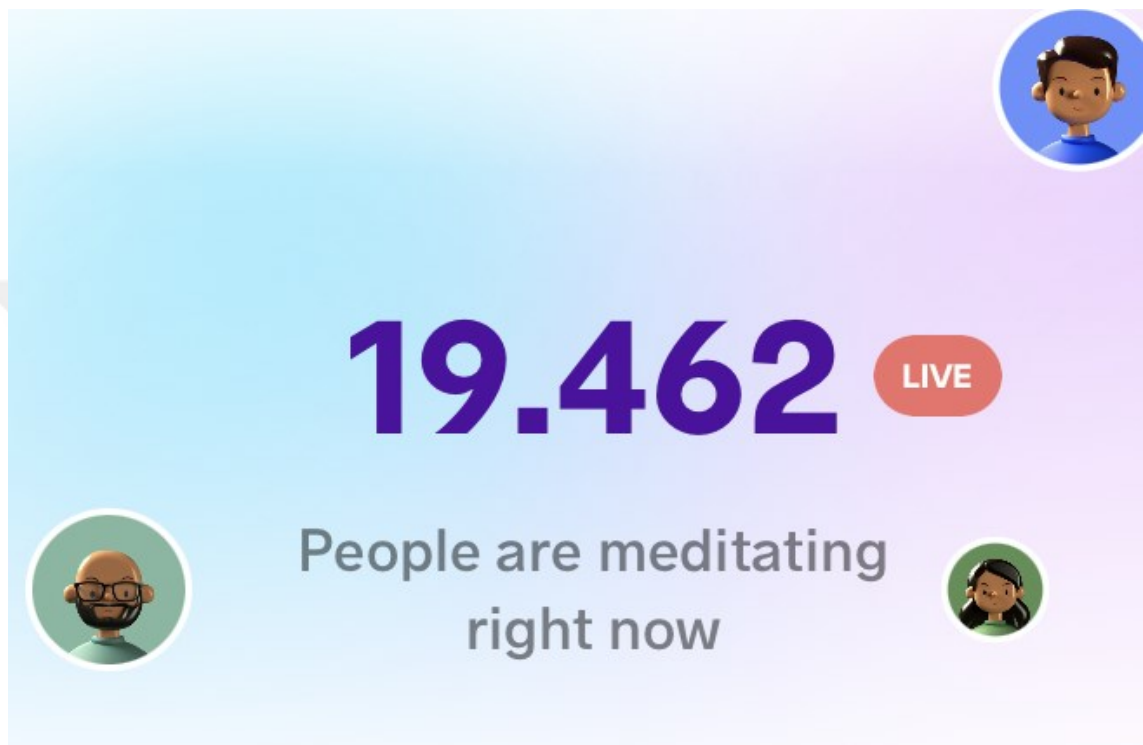


Figure 4.23 Meditopia's Key Features in the Homepage: Showcase of the Number of People Using The App

There is not any information about who these people are; we as the users do not know where these people are; how old they are. We do not know their ethnicity, their appearance, or their gender. We do not know what they are like. We do not know their daily struggles or their dreams. But we know they are out there somewhere around the world; and they are practicing mindfulness at this point in time.

On the one hand we know that, even if this number was not showcased, there would be people using the app all around the world; actually, there would also be many that do not use this specific app, or an app at all, while practicing mindfulness. In essence, this is an extrinsic visual cue of that reality; virtual and actual combined. Here we see, such a simple design element can guide the attention to one's authentic being-in-the-world; by a virtual

reality that is somehow true to its original since it represents the actual reality we are in, via reducing it to a presentational form.

This design element reveals mindfulness practice in a way that face-to-face mindfulness training can not; thousands of people are practicing mindfulness, in one way or another; whether it is on an app or not. Face-to-face mindfulness training can be, and usually are, conducted in group sessions; on the other hand these groups consist of a room of people, not tens of thousands; but tens of thousands practicing mindfulness simultaneously anyway.

In essence, practicing mindfulness via an app; have an *aleness* quality by-design; as opposed to practicing with a group. Even without technology mediation; mindfulness practices turn the attention back to the self; even amongst a group they have an aleness quality by-definition too. But practicing via an app can also awaken a state-of being close to the feeling of *loneliness rather than aleness*. Aleness and loneliness are not similar experiences; but they might be felt at similar conditions. And, this feature is in favor of *aleness* rather than *loneliness*; it grounds people and shows that there are many who share similar experiences with them, whether they are similar at all or not.

At this point we also must note that, in our EIs with designers from Meditopia showed how *loneliness* was quite an essential theme in their design process that they intentionally dealt with; especially after Covid-19 pandemic (see Chapter 5). They noted that being isolated increased the potential of heightened sense of loneliness and they have worked on creating ways of easing the stress caused by such precautions. Since we will deal with the EIs in Chapter 5, we will not get into this in detail but at this point it is fair to say that the design outcome and designer intentions seem to overlap based on our analysis here and designer interviews.

With this last feature, we finish looking into the spatial elements used in the apps Calm, Meditopia and Headspace. Remember, we have noted that Headspace did not consist of any spatial elements; in our further analysis we have observed that this lack of spatiality interestingly resulted in Headspace homepage consisting of features heavily linked with temporality. It would be a surprise for people familiar with Heideggerian philosophy; since Heidegger strongly argues that spatiality and temporality are intimately related and

the perception of one cannot be formed without the other. Although it is not surprising it is still interesting, since empirical data shows correlations between such theoretical discussions and on a such practical level: design. Therefore, now we will move on to our next subsection to analyze how the lack of spatial elements resulted in Headspace.

4.3 An Analysis of Temporal Design Elements: Persuasion Through Recommendations, Reduction Strategies, Fragmented Time and Tasks

In our previous subsection we have looked into the use of spatial elements in the homepages of Calm and Meditopia, and we have provided an in-depth analysis of how these background elements play a role in the overall experience these apps offer. On the other hand, we have seen that Headspace's homepage does not consist of such a design element and we have noted that the lack of this element is also significant for our study. In this subsection we will look into Headspace's different approach. To remember our analysis of salient features (see Subsection 4.2) let's take a look at Headspace's homepage again (Figure 4.24). Since Headspace does not offer a background image in its homepage, its visual structure is much more different compared to Calm and Meditopia.

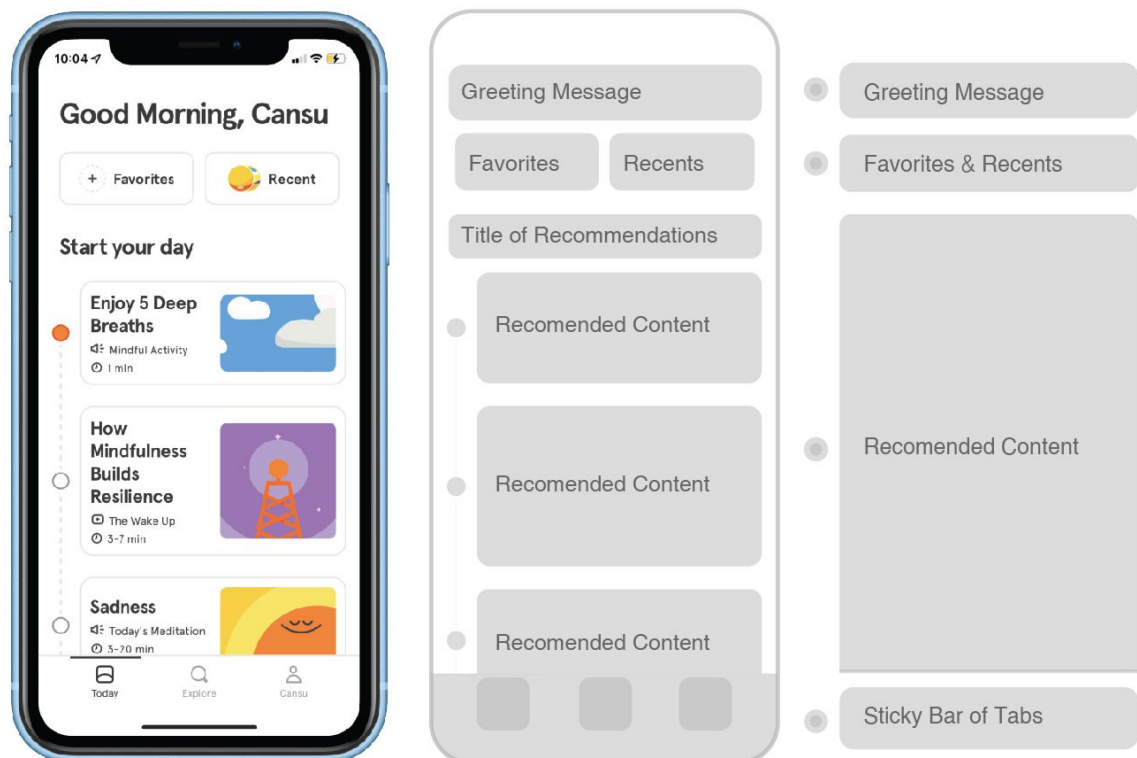


Figure 4.24 Initial View of the Homepage of Headspace and Key Features

In essence, Headspace’s homepage is much shorter; there is not much to scroll down. As seen in Figure 4.24 Headspace’s homepage is mostly reserved for a *short list of recommended content*; besides the greeting message at the top, and favorites and recents buttons.

As we scroll down we do not see any other features; but we see that the recommendations are categorized by the time of the day (see Figure 4.25). Put simply, the first one consists of the recommendations for the morning; titled ‘Start your day’, the other one is for the afternoon, titled ‘Your afternoon lift’ and the last one is for night titled ‘At night’.

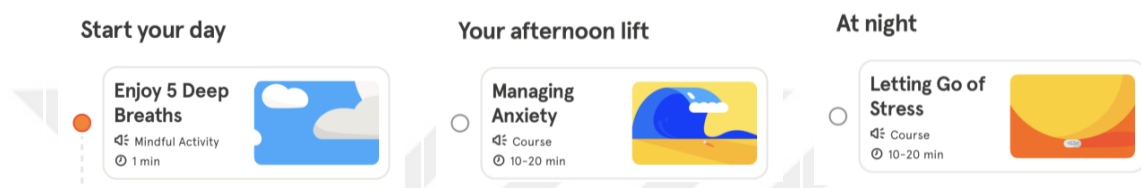


Figure 4.25 Subsections of recommendations in Headspace’s homepage

So, hypothetically speaking, if a user who opens the app at night, he or she would still see content recommended for the morning and afternoon, but see *only one recommended content for night*. This is a very interesting design choice for two reasons. Firstly, because it is not really necessary to show content that is designed to be consumed in the morning in night time. And secondly because the number of recommendations is very low; we are used to seeing as many recommendations as possible on new media platforms. Which brings us to the question: what might be the reason for offering low number content and dividing them by the time of the day?

This is an important question in our context because we know timely recommendations are more persuasive; this means either we are faced with a calmer version PT application, or there is a more complex dynamic than basic principles of PT we have looked into so far. Earlier (see Subsection 4.2), we have argued that the low number of elements show that Headspace’s minimal approach is not only stylistic but it is also functional. As seen in the screenshots; there is not much going on with Headspace’s homepage; it can be described in a few sentences and can be shown by a couple of screenshots. We have even made a comment that Headspace is *not trying too hard*, in a good way; there are no long lists of content overwhelming the users.

This does not mean recommendations are not a big part of Headspace’s user experience. Considering Headspace’s competitors; it is important to note that the lack of other elements in Headspace’s homepage has resulted in a homepage that is almost *entirely made of recommendations*. For comparison, let’s look into all three apps side by side (Figure 4.26).

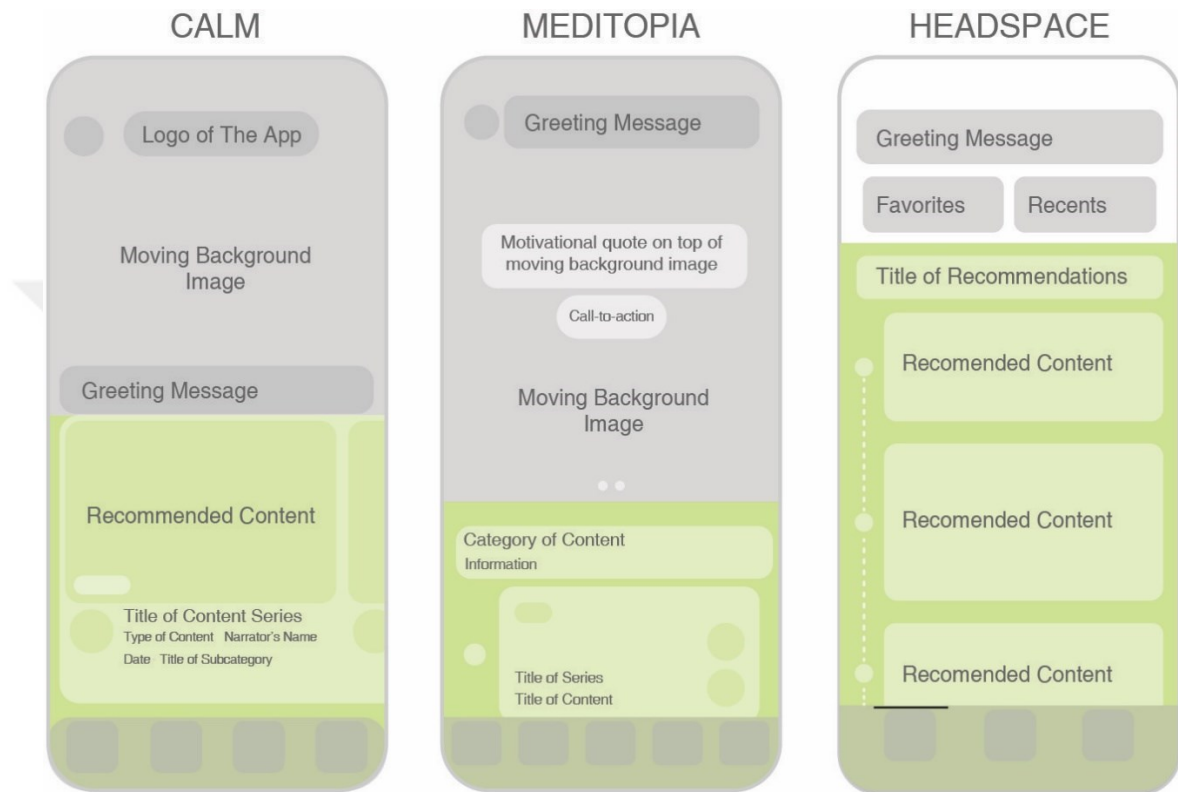


Figure 4.26 Comparison of the Recommendation Sections in the Homepages of Calm, Meditopia and Headspace

At this point we must contemplate on how this affects the user experience. We find ourselves facing an important question: in what way does this design approach of Headspace contribute to mindfulness training via technology mediation? Is it calmer? Is it more persuasive? In this subsection we will search for answers to these questions while focusing on these apps’ use of recommendations and their role in persuasion.

Firstly, showcasing all of this content do not seem very logical, from a PT perspective. Earlier, in our literature review; we have explained *the right timing*’s crucial role in persuasion via technology (see Chapter 2.3; see also Fogg 2003); PT becomes more powerful, when it suggests actions *timely*. The subcategory of PT which takes advantage of this principle is suggestion technologies.

“The suggestion technology simply serves to cue a relevant behavior, essentially saying, ‘Now would be a good time to do X’—to get out of growth stocks and into government bonds, to change the air filter in your home’s heating system, to send a card to a friend you haven’t seen in a while, to call a customer to see if she needs more of your product. For the technology to be successful, the suggested action must be compelling and timely enough that you implement it.” (Fogg 2003, 41)

The recommendation algorithms of the platforms we use on a daily basis take advantage of the same principle. And if you think about it, nearly all apps use them, especially on-demand platforms like Youtube, Netflix, Spotify.

If we turn back to our case; that is why, it would be easier to convince people to consume guided-meditation content designed for night; would be easier at night. Our devices are highly capable of getting in sync with the time of the day. Headspace’s designers could have easily chosen to display time-sensitive recommendations and design an interface to show the content recommended for the morning, only in the morning, and content for the afternoon only in the afternoon.

With this in mind, let’s contemplate on whether it would not it be plausible for an MBMA, Headspace in this case, to suggest content accordingly and *timely*: ‘*Now* would be a good time to energize yourself and start your day’ or ‘*now* would be a good time to relax and meditate for a good sleep at night’. Why is it that we, as users, see all of these recommendations all at once if they are categorized by the time of the day? Why are these recommendations offered simultaneously? What does this representation of content reveal and conceal?

If we take a second look into our empirical data; we can see that this almost resembles a to-do list. An example could be seen in Figure 4.27 (in the next page). If the user looks into the recommended content, taps on it and consumes the media; the list gets ticked. It reveals the content as if they are tasks to do. This is an interesting design choice in our context, because dividing the day into sections seems like a counter-intuitive strategy for an app that’s core goal is to enhance mindfulness; the capacity to feel *nowness*. Because, such a representation of the content does not encourage users to focus on *now*, instead it frames the users to think in terms of tasks, fragmented time and things to do throughout the day.



Figure 4.27. Headspace’s Key Features in the Homepage: Recommended Content in Check-List Form

This type of perception of time is something we are very used to from our schools, our work and our daily schedules. Such categorization of content reveals the perception of time and especially perception of a day as if it is made up of modular blocks. In essence, this type of perception of time is our default mode in our daily routines; whether it is a class or a work meeting or a break, we *plan it ahead* and *then execute it*. In a sense, this type of scheduling is a mindless state of mind instead of a mindful state of mind. Therefore it is interesting to see such a design choice in an app that’s macrosuasive goal is to enhance mindfulness.

It is a good point to remind our readers that this type of perception of temporality has very close links with our technologies. Earlier we have looked into many theorists' ideas (see Agger 2011; Castells 2009a; 2009b; 2012; Couldry 2012; Green 2002; Hand 2017; Keightley 2013; Lash 2002; Rosa 2013; Shove, Pantzar and Watson 2012; Taylor 2014; Tomlison 2005; Urry 2000; Vattimo 1985; Virilio 2000; Wajcman 2008; 2014) on how technological advancements impose upon such a perception of time to us; by causing an acceleration of time, day by day; we often get carried away and get into a mode of perceiving time more an more goal-oriented.

We have also mentioned that some argue (see Hand 2017; King 2016), that this type of technological influence is the reason why mindfulness practices are trending in the first place. As we get more sucked into the fast pace of life we become full of anxiety and stress, we start to search for ways to soothe ourselves. From this point of view the situation is ironic. On the one hand we are experiencing an acceleration of time via technology

mediation; which is overwhelming and burdensome. As a result, we are seeking practices that can take off the pressure that our technologies have created on us. On the other hand, the practices that are supposed to take the pressure off, are also mediated by technology; *in the same manner* that has caused the problem to begin with. Put simply, it is contradictory. So why do we see an MBMA adopting such a representation of time? Well, in short we see it because it is highly persuasive. Let's have a look at it from PT perspective.

4.3.1 A perspective of PT: Fragmented time and fragmented tasks

Although the critical perspectives demonstrate the disadvantages of this type of perception of temporality; from a PT perspective, fragmenting time into modular blocks is a very valid strategy to persuade people into achieving overall goals. Put simply, a built-in check-list inevitably seduces users to check the list. We all know that uncanny feeling of unread messages, unread mails, unfinished tasks, it is in our human nature to be at peace when we finish the tasks we are supposed to finish.

Dividing a complex task –like building a habit of practicing mindfulness– into smaller blocks –like practicing it 3 times a day– falls under the category of reduction technology (see Fogg 2003). This is how reduction technologies work: you take a complex target behavior, and divide it into smaller steps and simplify and optimize the smaller steps as much as possible.

The complex target behavior we have at hand with this feature is to practicing mindfulness on a daily basis via app mediation. This complex target behavior requires people to build a habit of *making time* for practicing mindfulness which requires *motivation*, choose sessions amongst many and practice them consistently day by day. Here we see that Headspace, used the principle of reduction beautifully; users do not have to choose content via any purposive search, there is already a short list of selection of content this makes the task simpler it would indicate a reduction in ability in FBM chart (see Chapter 2; see also Fogg 2009). The first content takes only one minute which is very convenient time-wise; and they included a slight nudge by offering the recommendations in check-list form to motivate people to finish the list.

So we see that designers have targeted two out of the three essential criteria for successful persuasion: motivation and ability. If readers are not sure whether this is the intention of designers; we can also have a look into one of our participants in this study providing an expert opinion on designing MBMAs. When asked to describe the persuasive techniques used in the MBMA he is working on, the first thing he mentions is these types of content:

“I can say that gamification is definitely used, especially in serial content. For example, let's say there is a seven-episode or ten-episode content in a series. The app shows you your *progress* there. I think it is the simplest gamification technique [...] It gives the impression of an unfinished task. It gives you *extra motivation* to complete it. [emphasis added]” (Anonymous Designer 03)

So, we know that there is a very strong persuasion attempt to build such an habitual interaction by designers. So far, we have focused on the feature we observed in Headspace's homepage; however, it is important to note that not just content offered in the homepage but most of the content offered on the platform is in this format. Moreover, this type of content presentation is not unique to Headspace either. In fact, we see that all three apps we are looking into have adopted the same approach; throughout their content consumption journeys. As seen in Figure 4.28, Calm presents the content offered in its platform in checklist format too. One can not listen to or look into the content offered in the list randomly; they need to listen to them respectively as if they are levels of a game.



Figure 4.28 An Example of Calm's Content in Series Format

In the first screenshot, we see the content in series. In the second screenshot we see what users see if they play the content; they have the chance to change the narrators of the content at this point. In the third screenshot we see that the session ends with a message:

‘Take a deep breath’. In the fourth screenshot we see that Calm’s designers have taken gamification one step further; the session ends with a message: ‘Next Session Unlocked!’, revealing the game-like experience. Users also have the option to take notes at this point. But most importantly, in the last screenshot we see that the content consumed gets ticked right after when the session ends.

A similar user journey is also seen in Meditopia (see Figure 4.29). In the first screenshot, we see the content in series is in checklist format. In the second screenshot, users can choose from a five minute or ten minute version; in the third screenshot we see how the content is played. In the fourth screenshot, similar to Calm, we see the session ends with a motivational message: ‘Congrats!’. Again, lastly, the content list gets ticked.

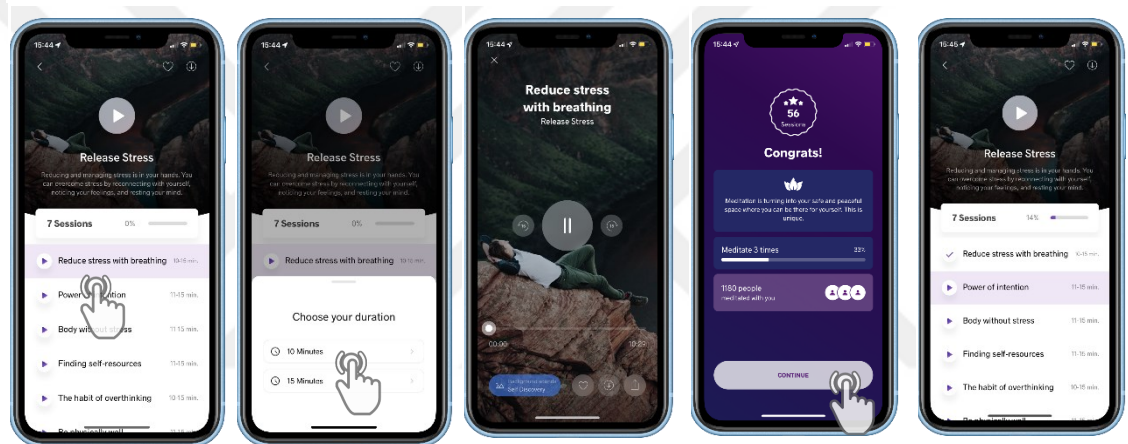


Figure 4.29 An Example of Meditopia’s Content in Series Format

We also see the exact same formulation in Headspace (Figure 4.30). Again, when user plays the content and finishes it; it gets ticked. In essence, these presentations reveal these content as if they task to complete on a to-do-list.



Figure 4.30 An Example of Headspace’s Content in Series Format

4.3.2 Building a habit in the Attention Economy

We have explained how these techniques are supposed to increase motivation. On the other hand it would be naive to think that designers of MBMAs, embed these features just to make sure users are building this new healthy habit of practicing mindfulness. There is also another side of the coin.

According to design ethicist Tristan Harris (see 2018), the reasons behind adopting such techniques are closely linked to the attention economy. He explains that, even the mindfulness apps' in the market, need to capture the attention of users and keep the attention alive by creating habitual use. Put simply, all applications, even mindfulness-based mobile applications that aim to instill calmness; ironically must compete for attention. Since there is a limited amount of time that people can reserve to digital platforms; and since there are firms that compete literally for that limited time for revenues such as Youtube; even the companies which do not depend on the time spent on their apps as much, need to find a way to capture users' attention. Because users are always faced with the choice of opening Instagram, or Youtube, or Tik Tok and scrolling down mindlessly; instead of opening Headspace, or Calm or Meditopia. Therefore these apps need to make sure their app is the *first choice* of their users, *on a regular basis*.

We must also note that our interview data seems to be pointing to similar issues. Designers working on these apps have a positive outlook on the mediation of mindfulness practices *mainly because* they consider these apps as healthier alternatives compared to other platforms. We will look into the designers' perspectives much more in-depth in the following chapter (see Chapter 5); but for now we can say that designers are aware of this competition for attention; think MBMAs should adopt these, since these platforms at least encourage mindfulness, rather than mindless digital consumption.

We looked into these attempts, in the context of Attention Economy. On the other hand, it is a good point to take even a step further and contemplate on mindfulness practices in general; they go way back to the Buddhist traditions that are over 2.000 years old (Sun 2014). Life conditions at the time were very different from the ones we have today. We have traffic now; noise pollution, air pollution, the list can go on... But most importantly for this study; today, we have digital platforms all around us seeking our attention. We

can even argue that what we are experiencing in this age is heavy notification pollution. With such levels of distraction, MBMAs almost act as an antidote; they use the same basic techniques of persuasive design that are available to, and used by, all apps; but to guide the attention to the self again.

So far, we discussed how fragmenting time into modular blocks enhances the persuasiveness of technologies; and therefore catalyzes behavioral change. On the other hand, we have discussed how technologies enabling this fragmented perception of time can be overwhelming and burdensome putting pressure on people to be available, and maybe more importantly productive 24/7. Since we looked into these design elements both from a practical PT perspective and also from a theoretical perspective in terms of fragmented time and acceleration; we can argue that what we have looked at so far, are the links between design choices and their influence on our perceptions of temporality.

What we observe here as design choices; are an end-result of our time getting more and more compressed. On the one hand, we observe that designers of PT include strong design elements to build a habit in users to use these apps on a regular basis. There are two possible readings here; firstly, habitual use of these apps, eventually means habitual practice of mindfulness which is in line with the overall goal of these apps on a macrosuasive level. But secondly, there is also another reading pointing out that the habitual use of these apps, eventually creates brand loyalty and profit.

There is no way to determine which one of these is the primary motivation and intent behind these design choices but one thing is for sure; users' time, attention has become so valuable that there are direct attempts to guide these. On the other hand, the more we are surrounded with such technology that have built-in intentions to create habitual use; users have less and less control on their time.

Another important thing to note here is that; these attempts of creating habitual use of these technologies are rarely visible for users. In many cases users would not know the content on these platforms are presented in such formats in order to create a habit of coming back to these apps again and again. Which in essence means that the intentionality of these features are concealed. Based on this one can easily argue that temporality is also under the influence of enframing. On the other hand, there are actually, features in these

apps we have not looked into so far, that are more transparent about building a habit; revealing their persuasive nature slightly more than these features we have looked into so far. There is one literally titled ‘Build a Habit’ in Meditopia (see Figure 4.31 and 4.32)

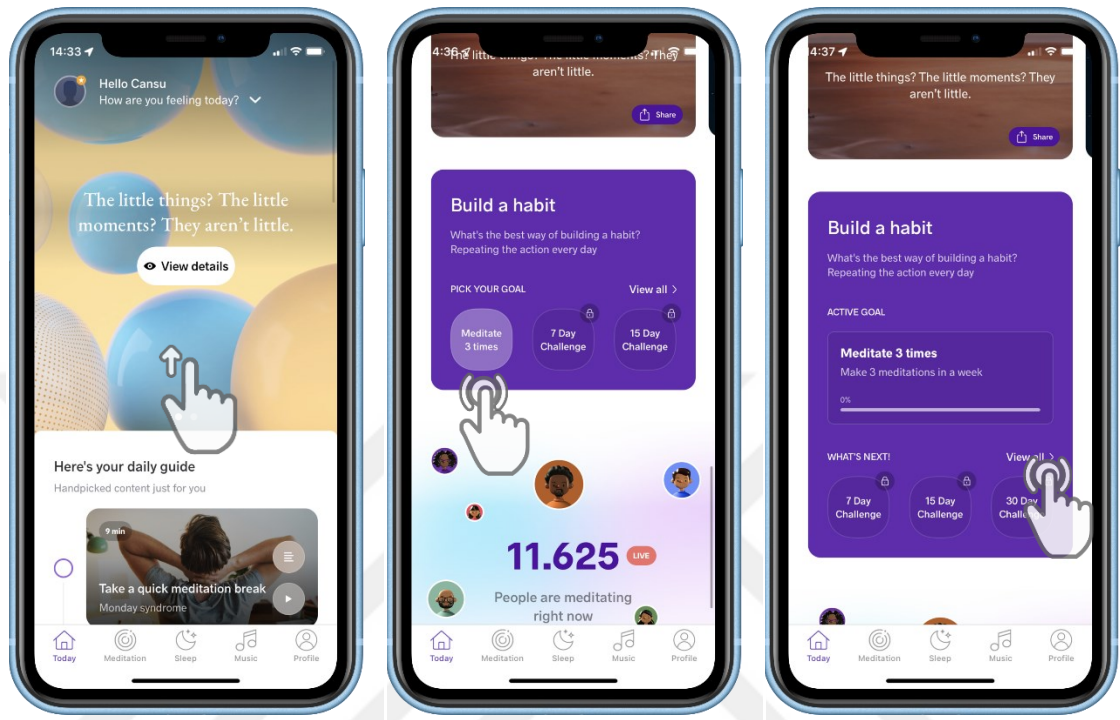


Figure 4.31 ‘Build A Habit’: Screenshots Showing the Interaction with the ‘Build a habit’ feature



Figure 4.32 ‘Build A Habit’: Tapping on ‘View All’ takes user to challenges, An example of the challenges to build a habit

This feature takes advantage of many PT principles; reduces the tasks into small blocks; designed very simplistic, as seen in Figure 4.31 one can enter into a challenge with a single tap without landing on another page, whereas a tap on the ‘View More’ lands users

into a page with detailed information (Figure 4.32). This consists of gamification elements; the tasks are presented as ‘Challenges’; and besides the first one all of them are locked resembling levels of a game; the wording is very intentional with the title which says ‘WHAT’S NEXT!’; the list can go on. In essence, it is highly equipped with persuasive design techniques.

In terms of agency, users seem to have very little of it *once they enter this experience*; This is a tunneling technology (see Fogg 2003); in which users enter a metaphorical tunnel and they are required to finish some tasks to get out of the tunnel.

For instance the first challenge is to meditate 3 times a week; once a user participates in this challenge they either have to complete the task or if they fail they have to enroll again; there is no other way to level up so to speak. In other words, it is not a weekly challenge that users playfully try to achieve and if they can not, then they can try the next week's challenge; right opposite, completing the challenges are rewarding by giving access to the next challenges.

On the other hand users are completely free to choose whether to use this feature or not; not participating in this experience does not restrict them in any way. More importantly, there are no deceptive elements in the experience; the feature is literally called ‘Build a Habit’. The goal is clear; it is to build a habit of using the app regularly; which in essence, balances out the power equilibrium here. From this point of view this feature seems to act as a tool that provides some degree of agency to users who want to build a habit of regularly practicing mindfulness.

We also see a section reserved to purposefully build a habit, in Calm’s interface too. Calm’s feature is called ‘Start A Daily Habit’. Although this feature can also be interpreted as an attempt to build a habit of meditating via this specific app; Calm’s designers’ approach is quite different compared to Meditopia’s designers approach. So Let’s have a look at Calm's feature. As we see in Figure 4.33, unlike Meditopia, Calm’s feature resembles the other content in series offered on the platform; instead of ‘looking like’ a completely different feature. We see that users can choose to ‘enroll’ into this experience by tapping on one of the four different narrators as seen in the first screenshot of Figure 4.33.



Figure 4.33 ‘Start A Daily Habit’: An example of interaction with the feature

This tap takes users to a tab consisting of content published daily by this specific narrator. In a sense, this format resembles podcasts; everyday new content generated by this narrator is published in this tab; if users scroll down they can also view older content. As seen in the second screenshot of Figure 4.33, if we tap on ‘Today’s Session’ a guided meditation begins; and just like the other content presented in check-list format, we see that at the end of the sessions this content gets ticked.

In essence, this feature can be interpreted as less persuasive than the feature we have seen on Meditopia; because it does not consist of persuasive techniques as much. Other than the check-list format, there are no motivators, no gamification elements, no tunneling technology, it is a simpler version of suggestion technology.

On the other hand, since the visual language is very similar to other types of content offered on the platform, we can say that Meditopia’s feature is just a little bit more transparent about the intention to build a habit; in Calm users might not notice, this since it is only obvious by the title whereas in meditopia the structure of the interface is significantly different than the regular content offered on the platform. Since we looked into these design elements both from a practical PT perspective and also from a theoretical perspective in terms of fragmented time and acceleration.

4.3.3 A Heideggerian reading of PT use to build a habit of mindfulness

Readers might recall this: When we were explaining the essential concepts of Heideggerian philosophy of technology; revealing, concealing and enframing; for the first

time, our initial examples consisted of ones where Heidegger's emphasis is on technologies' role changing perceptions of time and space. Firstly, we have looked into his passage on transportation and communication technologies; the one (Heidegger 1971 [1959]) where he literally starts by mentioning space and time in his first sentence:

“All distances in time and space are shrinking. Man now reaches overnight, by plane, places which formerly took weeks and months of travel. He now receives instant information, by radio, of events which he formerly learned about only years later, if at all. [...] The peak of this abolition of every possibility of remoteness is reached by television, which will soon pervade and dominate the whole machinery of communication.” (Heidegger 1971 [1959], 163)

Then, we have looked into another one (Heidegger 1966 [1959]) focused on mass communication technologies, criticizing their how they prevent one's authentic being-in-the-world:

“All that with which modern techniques of communication stimulate, assail, and drive man— all that is already much closer than the sky over the earth, closer than the change from night to day, closer than the conventions and customs of his village, than the tradition of his native world.” (Heidegger 1966 [1959], 48)

If I were to sum Heidegger's philosophy of technology in two paragraphs these two would be the ones. As seen in these examples; Heidegger's main concern when contemplating on technology is its capacity of influence on our perceptions; on our capacity of authentic being-in-the-world. Since he views temporality and spatiality as essential to one's being-in-the-world; that's inevitably where his focus is when contemplating on technology. In other words, he is highly interested in how technology makes us perceive temporality and spatiality. Therefore, when looking into the examples we have showcased so far, we must look into how they influence our perceptions of temporality; especially because they showcase intentional attempts to build a habit.

If we turn back to our study cases, MBMAs, we have noted that these features we have looked into makes us perceive time in modular blocks, one following the other. Such a perception of temporality would correlate with what Heidegger call 'ordinary time' (Heidegger 1962 [1927]).

This is our common understanding of time consisting of a linear flow from past to future; resembling an infinite line. Heidegger argues that; even though this is our common understanding of time, it is actually not how we experience time at all. He argues that our understanding of time in the ordinary form is somewhat distorted similarly to our understanding of being.

According to Heidegger, there are other modes of experiencing time alternative to ordinary time; one of them is ‘world time’ (Heidegger 1962 [1927]). World time covers concepts related to time which are defined to describe human interests; such as lunch time, or rush hour; or the Covid-19 pandemic can be a great example of world time. These are temporal concepts that only exist for humans.

On the other hand, he argues that this is also not an authentic experience of time. And he introduces us to the concept of ‘originary time’; Heidegger (1962 [1927]) argues that our true experience of time includes ‘moments of vision’ of the possible futures and memories of the past. We jump back and forth in time in our heads, all the time. For instance, we wake up, have breakfast maybe, and then sit down to work; the first thing we do when starting to work is to *remember* where we left our work: Did we progress as much as we planned? Did we succeed in keeping up with our goals? Are we happy with the quality of our past work? How should we proceed from there? Or let’s say we have passed that point, we worked and then we decided to get lunch, in that case we *consider* future implications; some might be excited when trying to choose what to eat; while others might worry about how the calories would affect their future weight... It is such a primordial ability to us, jumping back and forth in time like this, it does not feel extraordinary at all, actually, it feels pretty mundane. But it does not mean it is mundane.

According to Heidegger (1962 [1927]) ordinary *time* –our common understanding of time being linear– and *world time* –our common understanding of time being made of blocks– undermines the significance of the true nature of experiencing time: *originary time*. Time is not a successive concept as we commonly think of. Heidegger explains in these words:

“Temporalizing does not signify that ecstases come in a ‘succession’. The future is *not later* than having been, and having been is *not earlier* than the present.” (Heidegger 1962 [1927], 401)

So, from this point of view we can easily argue that the recommendations formats we have looked into so far, are not revealing time in its original form; they are concealing ordinary temporality. They do not focus users' attention on *nowness*, and they do not focus their attention on the future of past in terms of ordinary time. By presenting content in series format; presenting lists of what to listen next; they reveal time in terms of ordinary time; in a very goal-oriented way; they are literally represented as check-lists.

On the other hand, there is another way to look into these features. Since we have established the designers' intention behind these features is motivating users to build a habit of practicing mindfulness via apps; we can consider them as *tools* to build a habit.

In essence, in such a persuasion scenario, we can also assume users participation is voluntary; since they download and use such an app, it is very likely that they may as well want to build a habit of practicing mindfulness regularly. On the other hand, as we mentioned earlier, the features we have looked into have different degrees of transparency indicating these intentions to users. In some cases we see no transparency at all; for instance, there is really no way for a user who does not know much about PT to understand that the recommended content in Headspace's homepage is a strong attempt to build a habit of using this app. This contradicts the definition of a tool. In essence, when users are using a tool, they have a certain specific task at hand and use these tools to achieve their end-goal.

On the other hand we have also looked into two other features 'Build a habit' in Meditopia and 'Start A Daily Habit' in Calm. Although these features provide information about the benefits of practicing mindfulness regularly, there is no information visible about the experience designed in these features are persuasive; other than the titles. Still, even such titles are positive steps towards transparency of persuasive technology; because, they give an idea, even though it is not a detailed one, to the users of what these experiences are about; as opposed to experiences designed with the same intentions with no heads-up at all like the former examples we have looked in. Hypothetically speaking a user of Meditopia, can understand the Build a Habit feature is about regularly using the app to mediate and have at least a partially informed decision to voluntarily participate or not.

One might wonder, how considering these as tools would help us to form an Heideggerian reading of temporality. In essence, if take these features as persuasive tools, based on these

arguments than we can also conduct a tool analysis based on Heideggerian philosophy; which would help to form a deeper understanding of these features and as a result have a deeper understanding of their influence on our perceptions of temporality. In doing so we will need to use Heidegger's concepts ready to hand and present-at-hand (see Heidegger 1962 [1927]); to examine these as tools.

In essence, ready-to-hand means a theoretical understanding of a tool; knowing and understanding how it works and how it makes a task at-hand easy; whereas present-at-hand means a practical experience of a tool; in relation to our surroundings, our task at hand, our body (see Heidegger 1962 [1927]; see also Van Den Eede 2010). These qualities reveal and conceal themselves all the time; when we set a tool aside it is ready-to-hand to us; whereas when we are using a tool it becomes present-at-hand and its readiness-to-hand becomes invisible to us. Since we have established a theoretical understanding let's go back to our concrete examples; because the readiness-to-hand and presentness-to hand also applies to us too when we are examining these technologies, "when trying to focus on mediating technologies, and treating them as a 'subject,' we in fact lose sight of the essential condition of their use. 'True' use, in its context, escapes theoretical handling" (see Van Den Eede 2010).

If we turn back to the to our study cases; the 'Build a Habit' feature of Meditopia or the 'Start A Daily Habit' feature of Calm; would be ready-to-hand when we as users are not using them actively; but have a knowledge that they are there, in the interface, ready to use. On the other hand, they would be present-at-hand to users, when users are actively using them; consuming the content offered in these features.

In essence, since tools are either ready-at-hand or present-at-hand; transparency in each case is different. When a tool is present-at-hand; being transparent (in the common sense of the word i.e. being honest not in the sense of being concealed or invisible); means the present-at-hand qualities of a tool are fully revealed to us (see Van Den Eede 2010). In the case of PT; this means PT acting as tools can be considered transparent, when they are functioning as smoothly as possible. But as soon as they become ready-to-hand, as soon as we set them aside and stop actively using them, being transparent means revealing their theoretical nature to us fully. And in the context of PT, which translates into being fully transparent of their persuasive nature. This would translate into providing information to

users that what they are using as a tool *is designed* to persuade them. Readers might recall this; but we have looked into a similar observation from the PT field (Jacobs 2020); arguing ethical people should provide information about use of persuasion techniques on a platform in an understandable and simplistic way; that is easily comprehensible by non-designers.

From this point of view; we can argue that these technologies can become calmer by becoming more transparent in these two folds; because if they do so, users will have a better understanding about the designed experience and as a result, have more degrees of agency by understanding the restrictive nature of these experience and deciding to participate to this voluntarily or not. Their perception of time will become ‘less framed’; in a sense that an unconcealment would take place.

With these arguments we reach the end of our analysis of temporal design elements. So far, we have looked into these apps’ possible influences on our perceptions of spatiality and temporality; which come hand-to-hand in Heideggerian philosophy (see 1962 [1927]). Heidegger believes that we can only be in an authentic mode of being-in-the-world; via perceiving these as they are. But what is this authentic mode of being-in-the-world anyway? In the next subsection, we will look into the design elements that are significant in the context of authenticity of experience.

4.4 An Analysis of Experiences Mindfulness via Technology Mediation: ‘Customizing’ Content Narrations, ‘Customizing’ Content Durations, and Authenticity of Experience

So far, we have looked into the possible effects of MBMA’s on their users’ spatial and temporal perceptions; by looking into specific features that can either be categorized as PT in the form of media or PT in the form of tools (see Fogg 2003). On the other hand, we have not looked into what technology mediation of mindfulness practices brings to table. We have not looked into the user experiences these apps offer; when a user is listening to the guided-meditation content offered on these platforms. Therefore, in this subsection, our focus will be on these aspects. Afterall, the question of authenticity of these experiences is very significant for our study: Do these apps truly enhance meditative thinking? Or are they more representative of calculative thinking?

During the phase of inventory and categorizing of salient features, the most significant thing we have noted in this context; was the customization options offered for content durations and content narrations. Readers might recall, in the previous subsection, when we were looking into content presented in check-list format; we also briefly mentioned these but let’s remember them again. In Figure 4.34 we see Calm’s content in series format we have looked into previous subsection; in the second screen shot we see that users have the option to change between narrators, while playing the content.



Figure 4.34 An Example Changing The Narrator of Calm’s Content

Such an action causes the app to switch narrators that are narrating the exact same text; these do not consist of different texts. We have observed that this customization is not limited to the narrators, users can customize the content durations in some cases in Calm. We observed similar options in Meditopia too. As seen in Figure 4.35, in the second screenshot users can change the duration of the guided meditations they are listening to; or as seen in the third screenshot, the background music of this content.

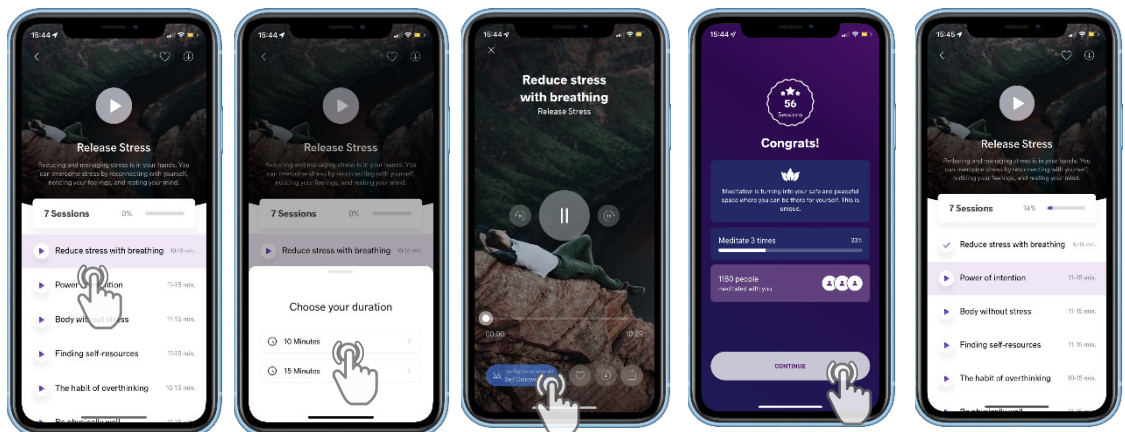


Figure 4.35 An Example of Changing The Duration and Music of Meditopia’s Content

There were also narrator customization options in some of the content offered on this platform; but they were rare. On the other hand, we also see that Headspace similarly offers different narrator options like Calm, when a user selects a guided-meditation content users choose from 4-5 options of the same content narrated by different people (Figure 4.36, first screenshot).



Figure 4.36 An Example of Changing the Narrator in Headspace

In essence, in all the apps we are looking into, a user can choose a guided meditation from the list of content *and then* change its narrator. To be clear, these contents have the exact guided-meditation texts; they are not different content generated by different people. They are reproductions of the same text. The customization options in MBMA's do not end there; we also see that users have the option to choose a content and then choose to listen to a ten minutes version *or* twenty. It is interesting to see such a feature offered by all of the apps we are looking into; because this is not a function we see in mainstream apps. Think of on-demand platforms like Youtube or Netflix; we can not customize *the duration* of a video or movie *before* we start watching, can we? We can not re-edit a video's flow, let alone a movie's; it is the video editors' choice and we as the users are not left with room to customize it.

In essence, it looks like MBMAs we are looking into seem to provide more control on forms; like duration or the voiceovers; of the content they are offering, much more than other platforms. Which makes these features significant for our study. Why do we see such *levels* of customization options on MBMAs? We find ourselves facing an important question: in what way does this contribute to mindfulness training? Do these features

enhance persuasiveness, or calmness, or both? In this subsection we will search for answers to these questions.

4.4.1 The role of technological trends and user expectations

Even though we can not find features directly correlating with these customization options in other technologies, we can take a step back and look around to find similar ones. Take a look around, do you see any examples of a technology enabling customizing a voiceover? The simplest example would be the built-in voice controlled personal assistants in our smartphones; like Siri, Alexa or Google Assistant. These are software agents that can perform tasks on behalf of us; based on voice commands we give them. We can command them to save a date; text someone or put our phones on silent mode.

When virtual personal assistants were first introduced, they only offered one option and they all sounded *as if* they were *female*. Even though it is tempting to get into the issues of gender bias here, it is out of the scope of this study. But in short, this preference was of course criticized by many, since personal assistants do not necessarily have to be female. As a result of such criticisms; companies created different voiceover options; male as well as female, and genderless ones. Criticism from people have led these technology companies to embed customizations options for voiceovers.

At this point, some might conclude that designers of Calm, Headspace and Meditopia are adopting voiceover customization features because it is a trend that tech giants like Apple or Google are following. And they would not be completely wrong; but such an explanation would be lacking. Because, if this was purely a result of following a trend, we would see other platforms adopting these strategies too, right? We do not see such options in many platforms; there must be a reason why other mainstream platforms do not adopt these customization features whereas MBMAs do.

Technological trends alone are not the only factor determining what users expect from a product or system. The trends also need to make sense in the context of use; adopting the trends must benefit the users in some way. So how does customizing a voiceover of an MBMA benefits users?

At the beginning of this study we had an observational period before conducting CMDA. At that point we have looked into app ratings and observed that many people were complaining and writing comments in line with: ‘the voiceovers of guided meditations are annoying’ or ‘the voiceover has an annoying high pitch noise’ etc. These complaints are perfectly plausible. Since these apps are offering mindfulness training; they need to provide users enough comfort to concentrate on themselves and their surroundings to pay attention to the present without judgment. Users should not have issues with the sessions and be annoyed by instructors. In this sense, it is not very different from face-to-face mindfulness training. For instance, assume you signed up on a face-to-face mindfulness course and later you found out that you did not really like the instructor. You would either change instructors or you would drop out, right? Same applies to the apps; if the user finds the voiceover ‘annoying’ they would try to change it or they would drop out. Therefore customization of voiceovers makes sense in the case of MBMAs.

4.4.2 The role of use context in determining user expectations

This can be better explained by looking at levels of product (see Figure 4.37, Kottler and Keller 2012). The first three levels; core benefit, generic product and expected product; represent what users expect from a product as bare minimum. People need a product to deliver its core function, they want it to have generic features that the competitor products already have, and expect additional features that competitors lack.

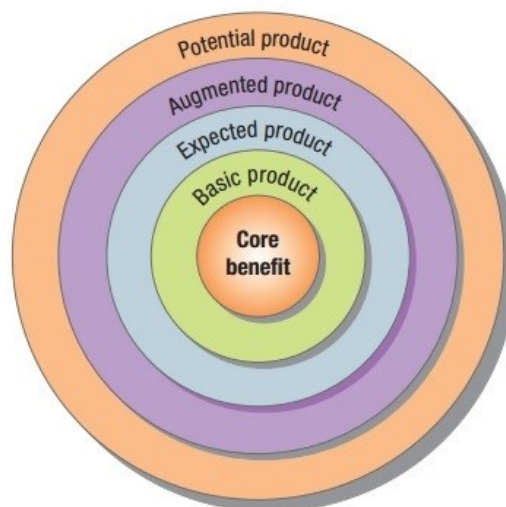


Figure 4.37 Five Levels of a Product (retrieved from Kottler and Keller 2012, 326)

Expecting voiceover customization in MBMAs on the other hand are not an example to these three levels of a product. They are an example of the augmented and potential product levels. So let's have a look at them too. On the augmented product level, people expect features they are familiar with via technological development over the past few years. Potential product level on the other hand, covers the expectations for the future: in the case of apps this correlates to updates.

From this point of view the expectations of users are more understandable. Siri, Alexa or Google Assistant are not competitors with MBMAs or vice versa. But still users expect such features from MBMAs too; because essentially, they know that it can be done and it makes sense in their use context. That is why we do not see other mainstream platforms adopting such customization options; because it does not make sense in their use context.

On the other hand, this raises questions about authenticity. If users are chopping chunks of content; making it half the time of the original duration; is that content still authentic to its original form? Same question applies for the voiceover options too. If mindfulness instructors are reading texts that other instructors have written; can they stay authentic to the original text?

Earlier we have discussed how these customizations resemble virtual personal assistants. Let's return to comparing virtual assistants and these features so we can clear the air. These examples to have some insight on our questions about authenticity. Even though customizing voiceovers of *virtual personal assistants* and customizing voiceovers of content on these platforms might look like similar design features on the surface; in-depth they are nothing alike. Voiceovers virtual personal assistants *are not vocalized by people*, they have artificial voices; the voices of smart personal assistants are generated through software *real-time*. Whereas the content on the apps we are looking into are *recorded by people*; which means that changing the voiceovers of the content on the apps require different people to *record the same sessions over and over again*.

In other words, when we are customizing Siri's voice, we are customizing the style of *the interface*; whereas when we are customizing the voiceovers of Calm, Meditopia or Headspace we are choosing the *content* produced by one instructor or the other.

Customizing content to this degree has the risks of reducing the original content to something it was not; because replicating and reproducing a content via different people. It is *reasonable* to expect such a level of customization for *the content people are generating*. And neither does it contribute to the experience itself; in fact it can deduct it.

Interestingly, one of our anonymous participants, a mindfulness trainer; actually had an experience that correlates with this. Since it is highly related to our discussion here; we can have a look at her experience. Basically, our participant received a job offer to write guided-meditation texts; but the company offered the job wanted the text to be narrated by someone else. She explains in her words:

“2-3 months ago I received a job offer since I work with editorial stuff as well. They asked me to write a guided meditation text, for a newly founded app. ... When I was writing the text, I was *actually feeling it*. Then, I read them; recorded them; listened to the recordings myself. Everything *looked in order*. And I said ‘Okay, that is it’. You know, you have to give pauses, calculate the moments of silence beforehand, et cetera, et cetera. *As if* you are in a *live session, as if* someone is *actually training with you*. Then I handed over the texts; and someone else narrated them... I could not even listen to the end result, I just turned off the recording; it was that bad...” Anonymous Mindfulness Trainer

It does not have to be like this way every time; but reproducing and replicating content via different people always has this risk. Of course this instance is not a direct example of what we are talking about; but it showcases how reproduction of content via division of labor, narration via different people, can deliver very different results.

If we turn back to our discussion. These voiceovers of the content we are talking about are not artificial as the virtual personal assistants; but users expect them to be as customizable as the virtual ones. What is significantly related to our work here is *the degree of control* we have *over the content* we interact with *as if it is an interface*. Customizing a virtual personal assistant voiceover is one thing; and customizing voice recordings of actual people is another. In essence, such a preference shows us that we expect content produced by human beings to be *as customizable as machines*. At this point we must ask ourselves, are we treating the people generating content as machines? Can content truly be as customizable as an interface?

4.4.3 Dissolving boundaries between interface and content

Since we have established that there is a significant shared pattern amongst Calm, Meditopia and Headspace to offer customizing features for content as if the content itself is an extension of interface; we must look into this pattern in depth. If content is more and more resembling interfaces we can start by asking the simple question: What *is* an interface, anyway? According to Brenda Laurel (1990), an interface is ‘a contact surface’. When we say ‘interface’; if we are thinking of a computer; we think of the screen, the visuals like icons and functional elements like buttons, the mouse and the keyboard; the visual and tactile contact surfaces between us and the computer. If we are thinking of a smartphone we think of the touchscreen; again quite literally what we touch to navigate through the interface. Let’s look into a more unconventional example: if we are thinking of a car for instance; we can think of the driving wheel, throttle or brake pedals. These are all contact surfaces; holding the machine at an arm's reach, alien to us (Munster 2011b). I think we see how we view computerized products very well in this definition. Interfaces, these contact surfaces, are our points of communication with computerized products. The points we communicate our demands as users. In this sense products demand us to adopt their logic of thought; we can use them if we adapt behaviors these contact surfaces afford.

On the other hand, there is another way to look into what an interface is. According to Donald Norman (1990): “An interface is an obstacle: it stands between a person and the system being used.” This definition is quite different from how we think of interfaces in daily terms. Unlike Laurel’s definition, here we see the boundaries between us the users and the interface dissolving and we see a desire to erase the surface for a seamless integration between the user and the computational system (Munster 2011b).

Virtual personal assistants are great examples of the dissolving boundaries between users and systems. Instead of dictating the logic of thought of computerized products; voice-controlled personal assistants adapt the logic of thought of humans in favor of humans: communication via speech.

On the other hand customizing a voiceover option of a guided meditation or customizing its duration seems to do the opposite. It dictates the logic of thought of computerized

products to humans not in favor of humans: customization of voiceovers generated by people require more and more people to do the same work, increasing the risk of reducing the authenticity of the content. We asked if it is really reasonable to expect such a level of customization from content generated by people. The existence of such customization options in this context, reveal the world as if it is *supposed to conform* to our preferences.

Such a feature shows that we as the users expect trainers to be customizable whereas it conceals the process of generating these content; collectively. It conceals the possibility of reducing the authenticity of the content produced and narrated by a network of different people and how intricate the process is. In our next subsections we will discuss these in-depth from an Heideggerian point of view.

4.4.4 A Heideggerian reading of persuasion through customization of content

What we have looked into so far is an interesting case, and it is pretty unique to MBMAs. One does not quite expect the content creation process of these apps to be so calculative, since their core function is to mediate mindfulness. But what we observed so far seems to be representative of *calculative thinking* rather than *meditative thinking* (see Heidegger 1966 [1959]).

We see the results of a goal-oriented content creation process, produced for a Mindfulness-Based Mobile application; this sentence alone shows the irony. Instead of content created via contemplation and self-reflection; we see reproduction of an original text again and again just to find the ‘sweet spot’; which would ensure the satisfaction of the most users. At this point, it is important to note that our interview data collected via EIs with designers, suggests that the data-driven nature of these corporate companies drive these processes; these companies have cost concerns especially when generating content via celebrities; and conduct many A/B testing as well-as in-depth user research before publishing content on their platforms (see Chapter 5). This type of research is Also goal oriented:

“[...] whenever we plan, research, and organize, we always reckon with conditions that are given. We take them into account with the calculated intention of their serving specific purposes. Thus we can count on definite results. This calculation is the mark of all thinking

that plans and investigates. Such thinking remains calculation even if it neither works with numbers nor uses an adding machine or computer. Calculative thinking computes. It computes ever new, ever more promising and at the same time more economical possibilities. Calculative thinking races from one prospect to the next. Calculative thinking never stops, never collects itself. Calculative thinking is not meditative thinking, not thinking which contemplates the meaning which reigns in everything that is.” (Heidegger 1966 [1959], 46)

What we observe in these features truly seems to be representative of calculative rationality; content creation reduced into smaller and smaller blocks; one writing the meditation texts, so a celebrity can narrate it; conducting A/B tests to determine the ‘best versions’ amongst the alternatives; editing these content so that users can customize the duration of these guided meditations if they want to; and laying an interface infrastructure to make all this available.

It is important to note that, what we have looked so far shows that not only companies view narrators as *standing-reserve* (see Heidegger 1977 [1954]) but users too; therefore it is representative of the enframing mode of revealing. And it is not a case where we can naively argue that these evil companies are making meditation practitioners work unnecessarily to produce the same content over and over again; no, the thing is, users expect this kind of service. Heidegger’s pessimism towards modern technologies, exactly roots from the possibility of such results. In *The Question Concerning Technology*, Heidegger refers to the enframing mode of revealing as “not just any danger” (Heidegger 1977 [1954]; 13) but the “danger in the highest sense” (Heidegger 1977 [1954], 14). Simply because it puts us in the position to not just perceive nature as raw material, *as standing-reserve* but also; ourselves (Heidegger 1977 [1954]).

He argues that concepts such as ‘human resources’, or the ‘supply of patients for a clinic’ is evidence that we already see ourselves as *standing-reserve* (Heidegger 1977 [1954]). He made this observation in the 1950s; but what about now? Now we speak of the monthly active user counts or downloads, as well as subscribers and followers; these are quite literal examples of the profitableness of persuading masses. He emphasizes several times that the primary danger that technology brings to table is not the destructive potential of it; but it is the subtle influences on us that changes the way we experience the world and the way we experience ourselves. He explains:

“The threat to man does not come in the first instance from the potentially lethal machines and apparatus of technology. The actual threat has already affected man in his essence. The rule of Enframing threatens man with the possibility that it could be denied to him to enter into a more original revealing and hence to experience the call of a more primal truth. Thus, where Enframing reigns, there is danger in the highest sense.” (Heidegger 1977 [1954], 14)

As we perceive ourselves as means-to-ends; we are not being authentic. More importantly, we do not even have the chance to become aware that we are not in an authentic mode of being-in-the-world; because ‘where enframing holds sway’ it even conceals the fact that our perceptions of our lives are highly shaped via already existing structures around us; and technologies in the enframing mode ‘no longer even let their own fundamental characteristic appear’ (Heidegger 1977 [1954], 14).

“Where Enframing holds sway, regulating and securing of the standing-reserve mark all revealing. They no longer even let their own fundamental characteristic appear, namely, this revealing as such. Thus the challenging Enframing not only conceals a former way of revealing, bringing-forth, but it conceals revealing itself and with it That wherein unconcealment, i.e., truth, comes to pass.” (Heidegger 1977 [1954], 14)

If we turn back to our study cases, MBMAs, we can leave the interpretation to the readers here: Do you think users look into the options to change narrators of these content; and experience it as something positive or negative, or not become aware of them at all? The answer to this question would reveal whether enframing truly conceals, that it conceals. Such a critical view we have demonstrated so far can only be held by a theory-based approach. If we looked into these features from a PT point of view we would be interested in the ethical application of PT techniques. We would ask questions like: “Is there deception by-design in this user experience?” or “What is the level of transparency of the persuasive techniques?” Such questions would not guide us here.

It is very important to note, that there are no intended deceptions by designers here; there is no attempt to persuade people to something they would not be willing to; there is no attempt to create technology dependency; the list can go on. The work conducted on PT ethics so far (see Berdichevsky and Neuenschwander 1999; Davis 2009; Gram-Hansen and Gram-Hansen 2013; Jacobs 2020; Kight and Gram-Hansen 2019; Spahn 2012; Spahn and Nickel 2012; Timmer, Kool, and van Est 2015; Verbeek 2006; 2009) are majorly interested in such scenarios. But sometimes persuasion itself is beyond the designer's

intentions. Sometimes, it is hard for designers, even for ‘the most conscientious designers’, to comprehend the implications of a technology, since technologies that we are dealing with have become ubiquitous in a way that designers are also oblivious to the patterns too (Guthrie 2013).

Heidegger published his seminal work *Being and Time* in 1927; nearly a century ago. We see the concepts he has developed are still relevant, maybe even more relevant than ever. Technology getting more and more persuasive, over the years, did not seem to help the issues he is pointing out. With these observations we come to the end of this chapter.

Since this chapter required us to interpret possible designer intentions and possible implications of the features offered in the MBMAs we are looking into; it was a challenge to provide theoretical readings on such practical and concrete examples. This required us to heavily lean on PT in our analysis. However, in the next chapter we would study these in a much more general way. We will look into the views of professionals working in the mindfulness field; mainly the designers but also a mindfulness practitioner. Since our EIs (Expert Interviews) are mainly focused on professionals outlooks on the technology mediation of mindfulness; we will not need to get into PT principles in-depth, instead we will have more room for theoretical readings and focus on other theorists.

5. EXPERT INTERVIEWS WITH PROFESSIONALS THAT WORK IN THE FIELD: DESIGNERS AND MINDFULNESS TRAINERS

In the first part of our field study, we have gathered empirical data from the apps we are looking into; Calm, Meditopia and Headspace; and conducted CMDA (Critical Multimodal Discourse Analysis). We have analyzed visuals, audios, and other forms of feedback, as well as possible user interactions in-depth. Based on the screenshots and screen recordings we have gathered, we have discussed these apps' persuasive qualities, calm qualities and possible designer intentions behind these design choices. Based on our observations, we have also introduced theoretical perspectives to our discussions.

On the other hand, looking into this data alone could be criticized for only providing an outside view to the design of these apps, which is mainly based on our observations and interpretations of possible designer intentions. Therefore, we have also contacted designers working on developing the apps Calm, Meditopia and Headspace to conduct EIs (Expert Interviews) with professionals working in the field; to be able to juxtapose the empirical data we have gathered via CMDA; to see whether they overlap.

Designers' views might be criticized for being one-sided too. As a reminder, to answer our research question, we must look into the unintended effects of PT as well as intended effects. Therefore we have also conducted another expert interview with a mindfulness trainer; to gain insight on an outside critical view of these technologies. When conducting CMDA; we have presented some of the interview data at necessary points. However, expert interviews' findings go far beyond just providing a self-check opportunity in this study. Therefore we will look into them in-depth in this chapter.

5.1 Purposive Sampling and the Backgrounds of the Professionals

We have conducted three EIs with designers that work on developing these apps; and, an additional EI with a mindfulness trainer (professional mindfulness teacher) that has no ties with these apps we are looking into. In total we have conducted four interviews.

Our greatest advantage in the study was interviewing designers that showed great variety in terms of educational backgrounds and overall professional journey; their awareness of

the PT field; and, finally, their familiarity with mindfulness practices outside of their professional work. Put simply; we have both interviewed designers who have formal design degrees as well as a self-taught designer; we have interviewed both designers who are interested in PT and one that is not; we have interviewed designers who have never practiced mindfulness before getting a job in the field as well as a designer who has been familiar with these practices since childhood. This variety of backgrounds; yielded qualitative data that is very significant for our research and ensured we can have an enriched discussion juxtaposed with our multimodal data. So let's have a look into our participants' backgrounds.

One of the designers that participated in our study graduated from a bachelor program of product design and continuing masters degree studies in product management; one of them graduated from a bachelor program of visual communication design; whereas the last one dropped out of college and was a self-taught designer. Since there are very few UX/UI design bachelor programs around the world; it is understandable that these people come from varying educational backgrounds.

Since the term 'Persuasive Technology' is widely adopted in academia; professionals working in the field are more familiar with terms such as 'gamification' which is also a branch of PT. Therefore at the beginning of the study we hypothesized some of the designers might not be familiar with the term itself but they would be familiar with persuasive techniques that are under the category of PT. Interestingly, one of the designers was familiar with and interested in PT; referring to foundational books of the field throughout the interview when discussing and explaining his work. On the other hand, the other two designers were not familiar with the term PT but familiar with the term gamification; which is a branch of PT. In other words, they were familiar with persuasive techniques and were adopting them in their work. Again, since UX/UI design is relatively a new field and there is not a standardized formal program to UX/UI design; in a sense, each designer is self-taught when it comes to interface design. Even if they graduated from design bachelor programs, they educate themselves intuitively depending on their personal interests in the field.

In addition to these, one of the designers were not familiar with mindfulness practices before getting a position as a designer in an MBMA company; one has been familiar with

mindfulness practices approximately a couple of years before starting to work in the field; and finally, one has been familiar with and interested in mindfulness practices long before he started to work as a designer in an MBMA company; to be precise he was familiar with these practices since his childhood because his family was interested in mindfulness practices.

In addition, we have also conducted another EI with a mindfulness trainer. Our participant has a background of formal training in mindfulness practices in a yoga studio center located in Turkey; which is a branch of an ashram located in India. She works as a meditation practitioner giving meditation, breathing and yoga classes both face-to-face and online; training people in long-term programs that take around 200 hours with 5-6 instructors. She noted that conducting training sessions online was a new thing for her and they had to transform their programs because of the Covid-19 pandemic.

The interviews took approximately 50 minutes; shortest being 42 minutes and the longest being 1 hour and 12 minutes. During the interviews we asked all of our intended questions (see Appendix B) to our interviewees. However, since the topics we are covering during the interviews are very interrelated; we have not followed the questions respectively, instead we have moved back and forth between questions based on the answers of our participants to keep the interviews organic. For more information on our methodology, readers can check Chapter 3, but to keep this section short, now we will move onto the empirical data we have gathered via interviews.

5.2 An In-depth Look into the Design Processes: Designing Persuasive Experiences for Mental Health and Well-Being

The first set of questions we designed for designer interviews; were intended to form an in-depth understanding of the overall design goals of these designers, their overall motivation and purpose in their professional work in MBMAs (Mindfulness-Based Mobile Applications).

Firstly we have asked our participants to briefly describe the apps they are working on. Unsurprisingly, their initial responses consisted of vague definitions of MBMAs; such as “people's personal mental health application” (Anonymous Designer 01) or “an app that

focuses on people's general mental health” (Anonymous Designer 02). Of course, such a basic understanding sums up the core function of these apps; however we need to have a little more understanding of the design process to understand persuasion’s role. We already know that MBMA’s core function and promise to users is to improve positive mental health traits while reducing negative mental health traits via mindfulness practices (see Chapter 2), but we are more interested in how designers perceive their role and how exactly their design processes go: What is it like to design products/interfaces to support people's mental health improvements? How do designers take mental health into account? So let’s have a look in how designers explain their work as a UX/UI designer working in the field of health and well-being:

“We do not realize how important our mental health is. Every problem we experience in everyday life is actually somehow related to our mental health. We usually try to focus on our physical health; but mental health is at least as important as physical health. Our platform touches the lives of so many people in this area; because there are thousands of content in regards; these thousands of content are suggested to you *according to your mood*. A special program is prepared *for you*. [...] Our role, as the UX team, is this: We prepare the content to be easily presented to the user *at the right time, in the right place, in the right way*. After all, we offer thousands of guided-meditations, but we need to present these meditations to the user accordingly. There is no point in presenting content about stress-management to a person at ease. There is no need to present meditation about sadness to someone happy...”
(Anonymous Designer 02)

As we can see in these explanations; our participant already has emphasis on *right timing*, *right placement* and *right way*. Even though our participant does not mention ‘persuasion’; what he is describing is the foundation of behavioral and attitude change (see Fogg 2009). In terms of PT; these translate into persuasion goals on a macrosuasive level (see Fogg 2003). In our literature review, we have explained differences between persuasion attempts on macrosuasive level and microsuvative level (see Chapter 2).

Put simply, if the overall core function of an app is to change behaviors and attitudes, it can be considered persuasion on a macrosuasive level. In our case, we are looking into MBMAs; their macrosuasive goal is to teach and help people to build a habit of practicing mindfulness regularly. We do not see a direct reference to habitual practice in this interviewee’s words; on the other hand here is another designer’s description of his work:

“It is simple, when talking about mental health in general, daily habits come into play. If people eat well; if they take care of their mental health; 6 months later, their chances of experiencing burnout would decrease... Or after 1 year, they would not need to go to the doctor as often, and they would eventually have less chronic diseases. In short, this is the service we offer.” (Anonymous Designer 03)

In this example, we see that our participant emphasized habits and their long term; he views MBMAs as a way to support health related behavior and emphasizes that the long term health benefits is the service offered.

With these two examples, we have seen how designers view their own work but we still do not know much about their design process; what they deal with on a daily basis. We have also asked our participants to tell us a little about the design process; as if they were explaining it to someone who does not know much about design. Because we are highly interested in the design process itself. We have started our study with the research question: How can PT get calmer? Having an in-depth understanding of the design process and understanding how these apps are developed is very important to answer this question and discuss what should be done. Put simply, what do the designers that work on MBMAs do on a typical day? One of our participants' answer to this question paints quite a vivid picture about designers' roles in MBMA companies:

“Let me give an example, right now, we are adding a new feature to our app: ‘How are you feeling right now?’. With this new feature, we want to *understand how the users are feeling at that moment*; after we understand that, we present related content types to users. [...] Simultaneously, we are working on getting feedback on meditation sessions; after completing meditation sessions we ask users to share their state of mind and how they feel after meditations. We want them to take notes about it. [...] Another example; we are developing a new service; One-on-One Coach. That coach is exclusive to you. After answering a long list of questions, the coach prepares content for you [...] Sometimes we focus on new features like this. Other times we want to, we try to focus on increasing the completion rate of meditations. We have these sorts of goals. We are trying to take various actions to initiate subscriptions for users in the trial processes. Goals like these are continuous, of course. Each of these is a project on its own. It usually goes in a more time-dispersed way; various ideas come out, and they are being implemented. We are trying to handle it efficiently in quarterly splits.” (Anonymous Designer 02)

Based on this description we see that; designers take the role in developing new features, new services, as well as improving already existing features. Overall, improving the

quality of recommendations, increasing feedback rates, following the trends in the field such as offering one-on-one coaches and developing these services. As you can see, these do not directly affect whether users practice mindfulness regularly or not; but they all support the overall goal on the macrosuasive level by improving the services these apps already offer. Therefore these can be considered persuasion attempts on a microsasive level (see Fogg 2003).

On the other hand, earlier in our literature review we have also noted that, since MBMAs core function is to improve mental health, users have the potential to be vulnerable people suffering mental health problems. One of our participants has also mentioned this aspect briefly when describing his role:

“Since we are dealing with mental health; what we create should refer to that. This is a very important aspect: users should not be stressed, and should not be lost in the interface. If you are designing a mental health practice app, it should be very well-tested. So that the user; who is potentially already dealing with mental health problems, would not get frustrated trying to find features embedded in the interface. The application should work smoothly. This is necessary for every application anyway; but [in our field] we have to provide the simplest structure possible.” (Anonymous Designer 01)

As we mentioned earlier our first set of questions was designed to develop an understanding of what working on an MBMA as a designer looks like. Our empirical data suggests that all of our designer participants have emphasized and described their work as offering a service for mental health improvements. In our earlier chapter (Chapter 4), we have provided an in-depth look into the interface architectures of these mobile applications that designers we have interviewed are working on; by providing analysis on screenshots and video recordings of these apps. We had discussions on how these features found in these apps might be interpreted in terms of PT.

One of the strongest observations we made was that the common use of certain persuasive techniques that aim to build a habit of practicing mindfulness regularly via technology; have also the potential effects on users’ perceptions of temporality and spatiality. We argued that these are a result of technology mediation of mindfulness. In the next subsection, we look into these arguments again, in the light of the empirical data gathered from interviews: How do designers view the overall technology mediation of these practices?

5.2.1 Overall views on mindfulness training via technology: use of PT to build a habit of mindfulness

When we look into the overall ideas on mindfulness training through technology mediation; we see that designers we interviewed had divergent ideas on the issue. Firstly, let's have a look into one of our participants who had a positive outlook. When asked about his outlook on technology mediation and whether offering a mindfulness training service via app is useful or not; he answered directly:

“This is a question I can answer very easily. Yes, I think it is very useful and very important to use technology and digital applications in this field [mindfulness practices]. Because now, smartphones are devices that we have in our hands all the time. Mindfulness is a habit; and the easiest, fastest way to form a new habit; adding or replacing an existing habit. That's why having such an app on your phone is beneficial; instead of looking into Instagram, you can open Headspace, or Meditopia, or Calm when you wake up in the morning. Doing a 1-minute meditation, or doing a guided meditation opens room for you to form a new habit, plant a seed... Why shouldn't everyone benefit from this? Why not simply download an app from the App Store and take advantage of this? The persuasion becomes the facilitator of this work. In other words, even to persuade oneself; sometimes people need a little help. To do a certain thing every day, to form a habit.” (Anonymous Designer 03)

In this example we see that our participant directly refers to persuasion via technology. He explains persuasion's role in this context further:

“There are many different techniques of persuasion. I am not familiar with all of them but I'm familiar with some of them used in the design field. [...] Besides persuasion for building good habits: How do we quit our bad habits? Checking social media every day, checking it when bored, at work, texting, consuming content... quick gratifications. We need to learn how to get away from these, too, so that there is room for other habits. If there is no room for them, persuasion will often not work. Because that new habit has nowhere to enter; in daily life.” (Anonymous Designer 03)

Here we see that this anonymous designer views MBMA's as a way to build healthy habits via technology mediation, as opposed to other habits technology might induce; he refers to these as 'quick gratifications'. This is quite a different description compared to our first example; because he emphasizes that persuasion via technology plays an important role in quitting bad habits as well as building healthy ones.

It is important to note that our anonymous interviewee based these ideas upon two books specialized upon behavior design (see Eyal 2014, see also Eyal 2019). The first one he refers to is Nir Eyal's *Hooked: How to build habit-forming products* (2014); which is a practical guide about PT techniques for designers. The second book he refers to also belongs to Nir Eyal. It is a follow-up book: *Indistractable: How to control your attention and choose your life* (2019); which is again a practical guide. But this time, it is not for designers, but for people who want to take precautions for the distracting effects of the platforms abusing these techniques. As we look into our interviewees answer; we see that he converged these two ideas. He views MBMAs as platforms which can take advantage of PT techniques to *replace existing habits of technology use*; such as checking Instagram excessively; *with healthier habits*; such as practicing mindfulness.

Earlier in our literature review; we have looked into a similar logic of thought from a different perspective. We have noted theorists such as Hand (2017) or King (2016) argue that technological overload of our epoch plays a significant role on why these mindfulness practices are trending. Hand (2017) argues that mindfulness practices are a subcategory of a more general simplicity movement trending; caused by "this sense of being overwhelmed by the expectations of accelerated digital media and the seeking of any kind of escape." Whereas King (2016) argues that a critical understanding of mindfulness discourse would be lacking without an understanding of "the modern history of mediatised distraction and the levels of stress and anxiety engendered by changing lifestyles, occupational patterns and new technologies that demand a state of continually dispersed rather than sustained attention." Put simply, they argue that the more we become distracted by technology, the more we search for ways to soothe our distracted minds; and mindfulness practices act as an antidote in such an environment. Here, we see that our anonymous participant also emphasizes the same issue; and perceives MBMAs as quite literal antidotes to other technologies.

We received another outlook from one of our participants regarding the issue. Anonymous Designer (01) also emphasized our already existing technological environment; as well as our excessive habitual use of technology. But, unlike the previous participant, his outlook about technology mediation was not as optimistic. He explains:

“*This* (pointing to the smartphone) *is our life now*. That's one of the reasons why everyone got lonely. I'm not saying this is a good or bad thing; it is simply what it is... And it seems like this is how it will be in the future. Even if we stop developing apps, it will not change. Because even if we don't develop our app, someone else would develop another. If we do not do it, then Instagram would... or another application. [...] There is already an increase of individualization as technology develops and makes life easier; apps are just taking their place in it.” (Anonymous Designer 01)

In this example, we see that our participant views technology mediation of mindfulness not as a positive step; but he views it as *inevitable*. He says: “Even if we don't develop our app, someone else would develop another...” Earlier in our literature review; we have noted that there is always a risk for designers to be oblivious to the patterns of technology itself considering its ubiquity (Guthrie 2013). But based on these two examples; we see that our participants are taking technology's effects on society into account emphasizing its ubiquity.

We have made similar observations about the ubiquity of technology earlier (see Chapter 4) when conducting CMDA, and brought theorists' views to the discussion and argued that, technology is not only changing our way of life; but, it is doing so, in a subtle way. Let's have a look into them to remind our readers again.

In sum, a couple decades ago; computerized products were devices used for work; whereas *now*, they are ubiquitous devices used in many contexts. They are used for leisure as well as work; at home as well as at the office. As their use context have been multiplied; our general perception of presence in all these contexts; home, work, leisure; have changed too (Shove et al. 2012; Wajcman 2008) and as a result, now we are expected to be present, via technology mediation at all times, in all areas of our lives; we are expected of ‘mediated presence’ (Couldry 2012). Hand (2017) calls this ‘mediated perception of time’ and argues that there is nearly no chance to have an unmediated perception of time in this age since we carry our devices with ourselves to wherever we go; smartphones are ‘continually mediating people's movements through the world’. He summarizes (2017) the situation in these words: “modern technology increasingly *demand*s things of us, in its own terms, at all times of the day [emphasis added].”

Our empirical data suggests that designers have a similar outlook on the issue too. There is a clear emphasis on the acceleration and distribution of technology, in our participants’

words. One says that “smartphones are devices that are in our hands all the time”, the other even says “smartphones are our life now.” We also had a participant (Anonymous Designer 01) emphasizing the acceleration of content consumption saying: “You need to capture people in seconds, otherwise people just scroll down...” However, designers not only observe such effects of overall technological developments on people, but interestingly, they also view MBMA’s as some sort of antidotes; emphasizing that users can open these apps, *instead of* looking into Instagram; as if they are healthier alternatives.

In sum, our findings suggest that designers in the field, similar to theorists such as Hand (2017) and King (2017), view mindfulness practices to be a solution to the technologic overload we are experiencing in this era. Are MBMAs really a solution here? In the next subsection, we would look into our participants first-hand experiences that cause them to form such opinions.

5.2.2 Ubiquity of technology and technologic overload: Could MBMAs be the solution?

When speaking of MBMAs in the context of technological overload and building healthier habits; it is important to note that all of our participants, including both the designers, and the mindfulness trainer, formed their opinions based on their first-hand experience. One of our interviewees (Anonymous Designer 03) shared his own experience with using an app to create a habit of practicing mindfulness. Importantly, he was interested in mindfulness practices before his professional work in an MBMA company; he explained further in the interview that MBMAs were actually a solution for him to get his personal practices in order, to practice regularly:

“I can give an example based on my own experience. I started using another mindfulness app about a year or two before I joined this company as an employee; to form a meditation habit. [...] I made a conscious decision. I said to myself: ‘I want to form a habit, I’ll start with the shortest meditation. It will be the first thing I do every morning when I get up and the last thing I do before I go to bed.’ It took time. I increased that from 1 minute to 2 minutes, then extended it to 5 minutes, and then to 10 minutes... after a while I was able to do it without the app by remembering techniques I learned there.” (Anonymous MBA Designer 03)

He describes how he has started small building the habit; has seen some progress over time and at the end he was able to practice without the app. This is a very important point for our study; because in terms of PT we expect the end goal of ethical persuasion to be ending persuasion itself (Spahn 2012). In other words we expect ethical PT use to increase user agency and decrease the dependency on technology itself over time. But our interviewer quickly adds:

“So: ‘I learned this via an app; and I am actually able to do it alone. Do I need the app anymore?’ I think, yes. Because sometimes, time passes and you lose a habit. You need to build that habit again. You need to be reminded again. Sometimes you have to go back and learn new things. Although you can sit quietly by yourself and go into a meditative state; sometimes it is not that easy and you still need that guidance.” (Anonymous MBMA Designer 03)

From this perspective, the end-goal of ending persuasion and increasing autonomy does not seem to apply anymore. Since we are constantly surrounded by technology that we perceive to be smart; we are at a state that the end-goal of persuasion is not ending persuasion anymore with such ubiquitous technology.

At this point one might argue that looking into this issue from a designer’s perspective is bound to be sided. Put simply, a designer developing a PT for building a habit of mindfulness; would of course find PT useful to build a habit of mindfulness. But interestingly, another participant, an anonymous mindfulness trainer also described these apps as a way to build a habit; again based on her first-hand experience.

Naturally, we would not expect a mindfulness trainer to know about Persuasive Technologies; since it is not related to her profession. Therefore we explained the term in a simple manner saying that Persuasive Technologies include a set of design techniques that aim to alter certain behaviors and habits of users; and gave the examples of the daily notifications or reminders that our apps send us. After this brief explanation we have asked our participant about her outlook on PT use in the field.

She replied by giving examples from an MBMA called Insight Timer, that she has used before. Interestingly, one of the first things she said was that she downloaded this app to build a habit of practicing mindfulness too. She explained technology mediation helped her to get things in order; but, eventually she observed the app she was using (Insight

Timer) was conditioning her and it was taking something away from the experience; it did not feel authentic to her. She explains:

“Insight Timer, it is one of these applications, maybe one of the first examples... It has this thing [feature] where you get stars as you meditate on the app; and the number of stars you have increases as you meditate... Then, the stars start to change color, as you accumulate more stars. So as you get a certain amount of stars and certain colors, you start to have some sort of prestige in the app. Star by star... When I first started using this app, it helped me a lot; it put me in order. [...] At first I thought, ‘Ah, okay, that’s nice.’ But then I realized that it started to condition me, a lot. I started to catch myself thinking things like: ‘Ah, I missed today’s star’... I have also realized that I have started to check my friends profiles and compare my stars with theirs. Then I thought: What am I even doing? This is supposed to be about meditation. It should not be this way...” (Anonymous Mindfulness Trainer 01)

If such a criticism was coming from a user, we might have interpreted it as a personal preference; but our participants' criticism is very significant; since she is a mindfulness teacher. So let's have a deeper look into what she is describing. Here we see that the anonymous mindfulness trainer is describing gamification techniques that most apps use nowadays. Put simply, gamification is applying game design techniques to anything other than games. A more scholarly definition of gamification is “enhancing services or products to invoke gameful experiences and positive behavioral outcomes” (Huotari and Hamari 2012; Hamari 2013). Using badges, challenges, progress bars, rewards, leaderboards are some of the very common gamification elements that apps take advantage of; and the empirical data suggests that they do in fact persuade (see Hamari, Koivisto and Sarsa 2014).

In essence these elements do not support the core function of apps; but they are implemented into services and products to increase the motivation of people (see Deterding 2012). But here we see that the anonymous mindfulness trainer has described these ‘attempts to increase motivation’ in a negative manner; to such a degree that she was actually alienated from the experience itself. In fact, when speaking of technology mediation she used the word alienation so much so that she even joked about it saying: “Well, I guess alienation is the buzzword of today’s interview.”

Of course, when she was speaking of these technologies, she was referring to Insight Timer, a different MBMA that we are not looking into in this study but in our CMDA

(see Chapter 4) we have observed that the apps we are looking into also adopt gamification techniques. Which brings up the question: How do designers working in the firms we are looking into, use these design elements? When conducting our interviews, gamification came up in all of the interviews when we asked our participants to give examples of PT used on the platforms they are working on. In fact, it was the first thing that came into one of our participants mind, when asked to give examples of PT, he explains:

“I can say that gamification is definitely used, especially in serial content. For example, let's say there is a seven-episode or ten-episode content in a series. The app shows you your progress there. I think it is the simplest gamification technique. It gives the impression of an unfinished task. It gives you extra motivation to complete it.” (Anonymous Designer 03)

The rewarding strategies the mindfulness trainer described are very obvious examples of gamification; but when we look into the anonymous designer's interview we see that it can be more subtle in other times. In our previous chapter, we have observed that all the apps we are looking into, Calm, Meditopia and Headspace, use this form of content presentation in a serial format on their platforms (see Chapter 4). Based on our literature review and theoretical knowledge of PT (see Chapter 2.3; see Fogg 2009); we have hypothesized that designers' intention to use this presentational form of contents in series was to increase users' motivation (one of the three criteria for successful persuasion). Our anonymous designer's description confirms this.

On the other hand we have also brought social and philosophical theorists into discussion and drawn attention to another subject: even though these are empirically tested ways to increase motivation, it does not mean the motivation would feel authentic to users. Anonymous mindfulness trainer's expert opinion on the matter seems to be supporting this idea too. So on the one hand, we observe the use of PT to build a habit of practicing mindfulness; on the other hand we observe that use of PT also has a risk to distort the mindfulness experience itself. At this point, bringing a theoretical point of view would benefit our discussion when looking into the overall experience mediated via technology.

5.2.3 A Heideggerian reading of technology mediation of mindfulness practices

So far we have looked into professionals' ideas on the overall mediation of mindfulness practices; and our empirical data has shown that there is a recurring idea. The idea being: MBMAs might be healthier alternatives to other technology; since they mediate mindfulness. We even observed that they can be viewed as a medicine to our distracted minds as opposed to other technologies that are distracting. This logic of thought actually echoes with the ideas one of the critical theorists of technology: Heidegger. Of course, when Heidegger was alive (1889-1977) there was no technology resembling the mindfulness apps we are speaking of today, even a little. So one might wonder how there can be parallels in Heidegger's philosophy.

Put simply, Heidegger (see 1977 [1954]; see also 1966 [1959]) was very alert about, technology's potential to influence people's perception of reality, and generally speaking, he had a pessimistic view in this aspect; but, similar to all the other theorists we have looked into, and the professionals we have interviewed, he argued that we can have a meaningful relationship to technology, *if* we adopt what he calls 'meditative thinking' (see 1966 [1959]). In this subsection we will look into this concept in-depth.

Earlier in our literature review (see Chapter 2.2), we have explained that Heidegger argues that technology's capacity to influence people is actually its essence (1977 [1954]). And according to him, technology always, whether modern or not, reveals some parts of the truth whereas concealing the other parts. Based only on these two concepts, revealing and concealing, one can start to think about the technology that surrounds them. In doing so one would essentially ask: How technologies change our perceptions of life, simply by existing? In the context of our study we could start using these terms to contemplate on MBMAs. We can ask: What do MBMAs reveal and conceal? How do MBMA's affect our perception of life, simply by existing?

But if we do so, we would miss a big part of Heideggerian philosophy; because as soon as clearing out these two concepts; Heidegger retrieves this poetic description of technology, claiming that modern technologies as opposed to older technologies, are not

revealing in this sense. He argues; modern technologies' mode of revealing is essentially different compared to other ones, which is the mode of enframing. He writes:

“Only when we allow our attention to rest on this fundamental characteristic does that which is new in modern technology show itself to us. The revealing that holds sway throughout modern technology does not unfold into a bringing-forth in the sense of *poiésis*. The revealing that rules in modern technology is challenging, which puts to nature the unreasonable demand that it supplies energy that can be extracted and stored as such.” (Heidegger 1977 [1954], 6)

According to Heidegger, modern technologies' essence is still revealing; but a different mode of revealing. He argues that modern technologies are not bringing-forth “in the sense of *poiésis*.” But he finds modern technology to be challenging-forth rather than bringing-forth. Modern technologies' mode of revealing “puts to nature the unreasonable demand that it supplies energy that can be extracted and stored as such” (1977 [1954], 6). Technology narrows our perception of nature, reducing it to natural resources and making up our dominant perception of it. In other words, it makes us perceive nature as a source of raw material for our resources of energy, as standing-reserve. According to Heidegger nature becomes a huge “gasoline station” (1966 [1959], 50) for powering human technology as a result of this mode of revealing. He refers to this mode as *enframing* (see 1977 [1954]).

But, if we turn back to our study case, MBMAs do not resemble anything that Heidegger is describing here, do they? MBMAs do not seem to be putting nature under “the unreasonable demand that it supplies energy” (1977 [1954], 6). They do not extract natural raw material, transform it into energy and store it in any way.

In essence, being under the mode of enframing does not necessarily mean a technology has to extract and store energies of nature; but rather, another core quality of enframing comes into picture. Enframing conceals every other possibility; preventing us to imagine other ways. It is true that these apps do not extract natural resources from the ground, or from the atmosphere, or from a river, but they are still businesses that are profit-oriented. Heidegger explains in these words:

“Where Enframing holds sway, regulating and securing of the standing-reserve mark all revealing. They no longer even let their own fundamental characteristic appear, namely,

this revealing as such. Thus the challenging Enframing not only conceals a former way of revealing, bringing-forth, but it conceals-revealing itself and with it. That wherein unconcealment, i.e., truth, comes to pass. Enframing blocks the shining-forth and holding-sway of truth.”

Put simply, enframing conceals that it conceals. But one might ask what it conceals; it conceals the essence of technology itself; it conceals the fact that technology is changing our perception of reality in some way or another. In a sense, we are blind to the fact that the essence of technology is revealing; because it is in the mode of enframing. Put more simply, in the enframing mode technology imposes its logic of thought to us, to ones using it, to ones developing it, to ones surrounded by it. So now, we can ask: Are MBMAs concealing other possibilities of being in any way? Is there a pattern here that technology is imposing to us?

One place we can look into is our participants' words; as neither designers of these technologies that mediate mindfulness training; nor mindfulness trainers are free of this effect of technology. We have emphasized these words before when we were presenting the empirical data; but they are highly related in our discussion so we will go over them again. We have observed one designer saying “smartphones are devices that are *in our hands all the time*”; we observed another justifying technology meditation because “smartphones are *our life now*” and stated that even if they do not develop the app they are working on someone else would. We observed a designer say, “you need to capture people in seconds, otherwise people just scroll down...” In essence all of these views indicate a choicelessness. If we contemplate on them, they seem absurd: Why should a designer be responsible for capturing someone's attention? Why can not we let people be not interested, if they are not interested? These questions have an easy answer: because it would not be profitable. Heidegger argues that we think this way because we are experiencing thoughtlessness:

“Thoughtlessness is an uncanny visitor who comes and goes everywhere in today's world. For nowadays we take in everything in the quickest and cheapest way, only to forget it just as quickly, instantly.”

He argues that we perceive everything in terms of profit because of what he refers to as ‘calculative thinking’. He explains in his words:

“Calculative thinking computes. It computes ever new, ever more promising and at the same time more economical possibilities. Calculative thinking races from one prospect to the next. Calculative thinking never stops, never collects itself. Calculative thinking is not meditative thinking, not thinking which contemplates the meaning which reigns in everything that is.”

When Heidegger speaks of thoughtlessness, he admits that “there were at no time such far-reaching plans, so many inquiries in so many areas, research carried on as passionately as today” however argues that what we are lacking is not this type of calculative thinking; but it is *meditative thinking* (1966 [1959], 45-46). Many might find meditative thinking useless, saying that some may argue that it “is worthless for dealing with current business. It profits nothing in carrying out practical affairs.” But he opposes:

“[...] meditative thinking does not just happen by itself any more than does calculative thinking. At times it requires a greater effort. It demands more practice. It is in need of even more delicate care than any other genuine craft. But it must also be able to bide its time, to await as does the farmer, whether the seed will come up and ripen. Yet anyone can follow the path of meditative thinking in his own manner and within his own limits. Why? Because man is a thinking, that is, a meditating being. Thus meditative thinking need by no means be ‘high-flown’.” (Heidegger 1966 [1959], 47)

If we turn back to our empirical data; one way of providing a Heideggerian reading would certainly suggest that practicing mindfulness, regardless of whether it is mediated via technology or not, would free ourselves from the enframing mode of technology, as we adopt meditative thinking instead of calculative thinking. That is why MBMAs are interesting in this context; because on the one hand they offer a platform to practice meditative thinking. But also, they are still byproducts of calculative thinking; they are the products of corporate firms that are goal-oriented or as Heidegger calls it, calculative.

There is another issue that rises at this point; as we pointed out earlier, as opposed to Heidegger, we, are in a mobile world right now. Nearly every move of us is mediated through technology in this age. When Heidegger developed his philosophy of technology; technology was neither as ubiquitous, nor as interactive or as persuasive. Therefore one can also argue whether these platforms truly offer an establishment for practicing meditative thinking.

As mentioned earlier, new media technologies act as intermediaries that users engage (Berdichevsky & Neuenschwander 1999) whereas people can *take actions instantly* with

and through devices (Fogg 2009). But this so-called ‘action’ does not really correspond to a physical action in the physical world; at least not in a balanced way; this ‘action’ is usually a tap on a touchscreen.

In the age of interactive technologies, the things that one can achieve by a click is endless; one can do grocery shopping; take photographs, share them with others; go live and reach to hundreds of thousands of people, or just a couple, depending on their followers; share their thoughts on something in 280 characters; or block their soon to be ex-partner.

If we turn back to contemplating on MBMAs; we can easily say that people can listen to a guided-meditation about reducing anxiety; via one tap... or they can sit with their aloneness in peace, instead of loneliness; via one tap... or they can practice guiding their attention to achieve greater focus and more efficiency at work; via one tap.

The point is, technology mediation has transformed these practices into new experiences; but we do not know if it is for the good or the bad. Whether the experiences these technologies offer is meditative thinking or not can still be questioned: Are MBMAs offering authentic experiences?

In the previous chapter (Chapter 4) have showcased via CMDA data, that in some cases it can be argued they do, whereas in others, they actually seem to be representative of calculative rationality. Now, we have the chance to go back to those discussions and directly look into professionals' ideas and first-hand experiences around the issue.

In the next subsection, we will discuss the quality of the experiences these platforms offer, and look into professionals' views in-depth.

5.3 Experience Offered on MBMAs: Authenticity of Experience, Data-Driven Nature of Companies and User Data Throughout the Design

So far, we have looked into our participants' overall ideas on the technology mediation of mindfulness practices; and how they view PT role in such an environment. We have looked into how the mediation of mindfulness practices are viewed by professionals. Our empirical data showed that they generally have a positive outlook; viewing MBMAs as *healthier alternatives* compared to other new media platforms. And we observed that both

designers and mindfulness trainer were generally optimistic because these technologies enable these practices to be distributed to large numbers of people. This logic of thought is common in the research field too; MBMAs are considered to be an opportunity to overcome issues of accessibility as opposed to typical mindfulness meditation training (Cavanagh et al. 2014, Flett et al. 2019, Mani et al. 2015, Plaza et al. 2013).

However; our theoretical discussions juxtaposed with empirical data have brought us to an important point: the quality of experiences offered by these platforms. Empirical studies suggest so too; as we have mentioned in our literature review (see Chapter 2), the quality of these apps are still in question; statistical data shows that only %4 of the apps that are marketed as ‘mindfulness apps’ are actually equipped with mindfulness training sessions (Mani et al. 2015). But some (see Roquet and Sas 2018) even question the quality of that %4. On top of these observations, our theoretical discussions on the concept of meditative thinking and calculative thinking in this context, have also pointed out that whether mindfulness practices offered on these platforms could count as authentic mindful experiences. Therefore in this subsection we will conduct discussions about the authenticity of experience offered on these platforms in the light of our interview data.

5.3.1 Professionals’ views on the quality of experience offered on MBMAs

Before getting into empirical data, it is important to note that we have not asked professionals how they view the quality of experience MBMAs offer; instead we included a question in our interviews concerning participants’ views on perceived advantages and disadvantages of MBMAs.

Both the designers we have interviewed and the mindfulness trainer have shared many observations; but the most significant thing that has come up was a first-hand experience of the mindfulness trainer. She explained that she had experienced alienation first-hand, as a user of an MBMA, but more importantly, she also has experienced it first-hand as a professional too. She shares her experience:

“2-3 months ago I received a job offer since I work with editorial stuff too. They asked me to write a guided meditation text for a newly found app. So, what does this entail? Meditation has various themes, one of them is guided meditation. Those texts should be written by

experts. They wanted me to write it but they wanted another professional to narrate it. Since I had prior writing experience, I accepted the job offer. The thing is, when I was writing the text, I was actually *feeling it*. Then, I read them. Recorded them, listened to the recordings myself. Everything looked in order. And I said: ‘Okay, that is it.’ You know, you have to give pauses, calculate the moments of silence beforehand... *As if you are in a live session, with someone you are training...* Then, I handed over the texts and someone else narrated them... I could not *even listen* to it. I just turned off the recording. It was that bad. Because that narrator was *not meditating...* just read it.”

She explains further:

There is already an application in between. So you have an apparatus, there is something mechanical, you might have headphones maybe... So these are all alienating things for meditation. But when the technique is not quite right, there is also a disturbing sound and wrong intonation. That's totally wrong” (Anonymous Mindfulness Trainer 01)

Based on her description, we observe that the process of producing content is reduced into small blocks; the text is written by one and narrated by the other. In this specific event, the one who wrote the texts, our participant, did not feel the narration represented the original intended text. We made a comment on such risks in our previous chapter when conducting CMDA; we have noted that options of narrators embedded in the interface indicate these guided meditations are written by someone and reproduced by narrators again, and again (see Chapter 4). Because these content are offered in different languages to users, and sometimes offered with different narrator options even in the same language. As a result this sort of content production always has the risk for reducing the original content to something it is not. Our anonymous interviewee’s first-hand experience seems to confirm it.

If we go back to the interview with the mindfulness trainer; after she explained her experience we followed up by asking whether the cause of the problem was the lacking skills of the narrator. She responds:

“Yes. But for example, there is also someone I know who is extremely competent and experienced in the field, working on the narrations of another application. I also find the narration of him/her very disturbing. The unnecessary positive intonation [in the guided meditations] bothers me, because meditation has no such duty. No one actually has to feel good when meditating... Or meditation doesn’t have to make anyone super efficient... But this is how it is marketed to people, with these applications. Meditation for sleep... Meditation

for increasing productivity... You probably looked it up, they are presented subject by subject; these are all bite sized pills.” (Anonymous Mindfulness Trainer 01)

It is a good point to remind our readers of our earlier discussions. When we were discussing the overall technology mediation of mindfulness practices in the previous subsection, we had a discussion in terms revealing and enframing (see Heidegger 1977 [1954]). We have noted that MBMAs do not quite resemble the technologies that are in the mode of enframing; but they have some subtle qualities that indicate they are.

The anonymous mindfulness trainers’ experience is a good example of those subtle qualities. We can observe that her criticism on how mindfulness practices as a lifestyle has become *something to market, something that is profitable*. As a reminder; enframing mode makes us see everything in terms of raw material; standing-reserve; that can be processed and transformed into profit (Heidegger 1977 [1954]). In our case, the raw material seems to have become mindfulness practices. She continues to explain:

“It turns into something different from meditation... Maybe it would be more accurate if it is not called meditation... But on the other hand, no one owns the concept of meditation... I’m not sharply criticizing it either. Let’s say... The fancy yoga poses on Instagram, or the meditation apps... The fact that these have commercial interests and that they are image-oriented, and being technologic... That's not much of a problem. It is becoming widespread, the new generation interprets it differently. These happen, yoga fits all, meditation fits all.” (Anonymous Mindfulness Trainer 01)

So on the one hand, our participant is critical of mindfulness practices becoming a form of commercial interest; she even thinks that referring to the content offered on these platforms as meditation might not be accurate. On the other hand, she quickly adds that she is not criticizing sharply; because she interprets these as an advantage for these practices to become widespread. Interestingly, one our designer participants also had a very similar view:

Instagram, or the meditation apps... The fact that these have commercial interests and that they are image-oriented, and being technologic... That's not much of a problem. It is becoming widespread, the new generation interprets it differently. These happen, yoga fits all, meditation fits all.” (Anonymous Mindfulness Trainer)

As a side note, again we are faced with an inherent advantage of Persuasive Technologies; they are easily distributed to large numbers of people (Fogg 2003). On the other hand, we

observe links between such reproduction and distribution opportunities and reduction of authentic experience.

We have made a comment in our CMDA that there are such risks; our participant experienced them first-hand, which brings us to the question: If there are such obvious risks why is it then these firms choose to reproduce content this way? To answer this question and to form an in-depth understanding, looking into designers' descriptions of the content creation process, will be beneficial. So let's have a look into one of our participants description:

Many yoga instructors you see on Instagram write content for us; that content comes from very good meditation experts. I know, how everyone calls themselves a yoga teacher or something like that these days; but it is not like that in this company; they (the content writers) are really good. They have been in the field for years. They write the meditation texts. There has to be a standard, you know. You asked about user data earlier... tests come into picture at this point. We test content for a while before it goes live. For example, we test it with three countries I have mentioned. Like Japan, Russia... If content gets good feedback, we ask the translators to produce it in other languages as well. (Anonymous Designer 01)

Here is another designer's description:

As you may know, our company works with celebrities to create content. That's why the feedback is very, very important. Because of the cost of the content, that is, if you work with a regular sound artist, you can produce content easier, but when you work with a celebrity, the number of zeros of the cost increase considerably; and different contracts and processes come into play. That's why the investments in this area are made strictly according to the preferences of the users. (Anonymous Designer 03)

It is important to note that we have not asked the designers directly to describe the content creation process. But these two examples came up, when we asked about the role of user data and feedback in the design process. By these two examples we understand that companies use data and tests to deliver content that users would like or likely to consume. In the second example, we see that the likeability of the content narration is especially important for MBMA companies when they are working with famous people, especially because of the economic aspects. On the other hand, looking into the mindfulness trainer's experience we also see that; what might be popular amongst users might not always represent the right technique.

This goal-oriented way of content creation is not something we only encounter on MBMAs. We live in an age of numbers, whether it is user counts on an app, subscribers on Youtube, followers on social media or ratings on television. Therefore it is not surprising that MBMAs also try to optimize their content to reach wider audiences. As a reminder, these are good examples of *calculative thinking*; this type of content creation is very goal-oriented. Our interviews with the designers working in MBMA firms shed more light on the issue. One of our participants explain:

“Our company is a data driven company. In other words, all the decisions made are based on data, or an analytical question and the answer to it. Even if it is a very new idea that is going to be tried out, some criteria and targets are set from the beginning. And if these goals are achieved, then more resources are allocated for that project. It doesn't even have to be a brand new project. It could be a feature, it could be a content. [...] This also varies a lot between countries and regions. So, for example, our company is currently aiming to increase its brand awareness and downloads in Europe. But Europe has a very different cultural structure as opposed to America. They have a very different perspective on meditation, mental health, or content like that.” (Anonymous Designer 03)

Here is another designer explaining data's role in the design process:

“User data is already the subject of the research process, we are of course actively using it. We have a data team. Thanks to them; they can easily give us anything, whenever we request. For example, when we are going to design an area, the use of that area, error counts, (inaudible) counts, device counts et cetera. Of course, we have access to all the details. As a matter of fact, we can do remote tests by targeting them. As an example. We use data in these sorts of processes.” (Anonymous Designer 02)

Based on these two examples we see that these companies value user data and user tests primarily for developing optimum solutions to the problems they have at hand. We see designers mention *brand awareness* in specific regions and *download counts* which are more related to profitable actions for the companies; as well as *error counts* in features, *device counts* which are more related to user experience. Also interviewees added that data can be the basis of qualitative user research in some cases. One of our participants explains as follows:

“Besides data, user research is also very important. We have user experience researchers; they constantly formulate questions based on this data, then meet with users and collect data; whether it is focus groups or one-on-one user research. And at the same time, they come back

and check the solutions we have produced to the problems they have identified with similar users. In other words, it is a very controlled design and development process.” (Anonymous Designer 03)

So, what our participant calls a ‘*very controlled design and development process*’ is mostly based on quantitative data such as download counts in a region, or error counts in a feature, or A/B testing of content created by celebrity narrators... On the other hand, based on the empirical data from our interview with the mindfulness trainer we also see that quantitative data does not always lead to qualitative solutions.

5.3.2 The role of ‘relevant data’ in the context of PT

Our theoretical knowledge indicates that persuasion via technology is very closely linked with relevant data; since it is considered to be one of the six fundamental advantages of computerized products over human persuaders (see Fogg 2003). Think of Amazon’s success; it has become the first e-commerce giant by simply recommending people books based on users’ previous purchases; in other words, based on data. If we turn back to our study case, at the very beginning of this chapter we have looked into a designer's description of their role emphasizing relevant data too. He said:

“After all, we offer thousands of guided-meditations, but we need to present these meditations to the user *accordingly*. There is no point in presenting content about stress-management to a person at ease. There is no need to present meditation about sadness to someone happy...” (Anonymous Designer 02)

This kind of data-driven process we see in nearly every firm ‘characteristics of a widespread belief’ which assumes the objective quantification and tracking of human behavior and sociality through online media technologies would enable us to predict people’s future actions (van Dijck 2014). This belief roots from the assumption that larger the data set is, knowledge that it generates becomes more objective and accurate (van Dijck 2014).

At this point it is important to note that the belief that digital traces would enable us to make future predictions has not become a widespread belief without any basis. Earlier we have explained how crucial the role of right timing is in the context of persuasion. PT has great advantage in regards to right timing, taking advantage of *kairos*; in other words

opportune moment to persuade (see Fogg 2003). Our participant has a point, there is truly “no point in presenting content about stress-management to a person at ease.”

But, the thing is, big data is purposefully generated and is anything but objective; that is what makes this widespread belief wrong (van Dijck 2014). Our empirical data also suggests so; two of our participants have explained how they worked on user feedback mechanisms at the end of sessions to have a better understanding of why users quit in the middle of sessions *in order to increase completion rates*.

This specific example is a qualitative data gathering event; but it is a good example for showcasing that data is *purposefully generated*. van Dijck (2014) explains the issue in these words: “Metadata relate to human behavioral acts in the same way as MRI scans relate to body interiors: signs of disease never simply appear on a screen, but are the result of careful interpretation and intervention in the imaging process.” In other words data alone does not mean anything; it requires skilled professionals interpretation and intervention.

We should not fall into the false premise that suggests bigger the data set is, more accurate its prediction becomes; on the other hand, we also should not overlook relevant data’s power in persuasion. So how should we read the empirical data we have gathered in the light of this information?

We have showcased that MBMA companies are doing tests for guided meditations. Data might suggest a celebrity’s narration is popular amongst the app; but if the process is lacking “careful interpretation and intervention” by a skilled professional the result might also be criticized by a mindfulness practitioner for not feeling authentic. As we have seen in our example, high consumption rates of a celebrity’s narration of guided meditation does not necessarily translate into high-quality guided meditation. This is a great example for the critique of the dominance of calculative thinking over ‘meditative thinking’ (Heidegger 1966 [1959]); which is boldly as ‘thoughtlessness’. The more thoughtless, we become, the more we see things in terms of profit; as a result, user data becomes standing-reserve (see Heidegger 1966 [1959]; see also 1977 [1954]).

5.3.3 A Heideggerian reading of data-driven companies

They both emphasized that even though they are not fond of mindfulness practices being commercialized, *however*, they perceive it as beneficial *as long as* people benefit from these practices. We have looked into mindfulness trainers criticism about how mindfulness is marketed to people and how it changed from its origins earlier but let's have a look again:

“No one actually has to feel good when meditating... Or meditation doesn't have to make anyone super efficient... But this is how it is marketed to people, with these applications. Meditation for sleep... Meditation for increasing productivity [...] these are all bite sized pills.” (Anonymous Mindfulness Trainer 01)

We can observe that her criticism of mindfulness practices is becoming something to market as a lifestyle. In Heideggerian terms this can be interpreted as a sign of technology revealing the world to us the enframing mode. When Heidegger was contemplating on enframing; what he dealt with was industrial technologies that process natural material and energy. On the other hand, what we are dealing with here are interactive technologies; instead of a natural material like wood or silver, or a natural energy resource like water or wind; it seems like daily practices, lifestyles, and cultural capitals have become our natural material to process. And as his philosophy suggests we see that enframing does in fact conceal the other possibilities of being; since one of the designers we have interviewed and a mindfulness practitioner seem to be not criticizing sharply and accepting it as a necessity that our age brings to table.

One can wonder why it is so significant whether we observe qualities of enframing or not. In *The Question Concerning Technology* (1977 [1954]), Heidegger makes it very clear that he thinks enframing mode of revealing is dangerous for humanity; so much so that he refers to it as 'not just any danger' but the ultimate danger as such. In *The Memorial Address* (1966 [1959]) he even argues the biggest danger technology brings to table is not its capacity to be immensely destructive. He claims that if we were to manage to prevent a nuclear war; our biggest problem would be the logic of thought that enframing imposes upon us. The revealing mode of Enframing is dangerous because as humans proceed to perceive everything around them as standing-reserve, they are in the risk of reaching a point of perceiving themselves as raw material too:

“As soon as what is unconcealed no longer concerns man even as object, but does so, rather, exclusively as standing-reserve, and man in the midst of objectlessness is nothing but the orderer of the standing-reserve, then he comes to the very brink of a precipitous fall; that is, he comes to the point where he himself will have to be taken as standing-reserve.” (Heidegger 1977 [1954])

Heidegger argues that concepts such as ‘human resources’ or ‘supply of patients for a clinic’ are evidence of such an understanding (1977 [1954]). More up to date examples could as well be; monthly active user counts, or subscribers, or followers.

In the 2020s, especially in the context of new media, this idea of perceiving people as resources does not come as a shock. There is a widely-known anonymous saying that goes: “If you are not paying for the product, you are the product.” It is used to imply that free online platforms generate revenue off of their users’ data; and the real customers are the ones who pay for user data, usually being advertisers. But in our case, we are looking into MBMAs, which are not offered free and have subscription fees. The enframing mode of revealing is not as obvious as in these cases.

One of the observations we have made in our CMDA, was how all of the apps we are looking into, employ customization options on their content (see Chapter 4). We have noted that users have the options to change the duration of guided meditations as well as having the option to change the voiceovers of the content they are looking into. Put simply, a user can choose from a list of people narrating the content. In sum, we have argued that replicating content *generated by people* over and over again might reduce it to something it is not, resulting in turning it into something less authentic.

In the previous chapter, we have noted the *degree of control* users have *over the content* they interact with *as if it is an interface*. These recordings are customizable as if they are virtual personal assistants; as if they are *as customizable as machines*. And we have brought an Heideggerian view arguing technologies’ effects on people perceiving the world as standing-reserve, perceiving human creativity as a resource. And in this subsection, we had the chance to go back to this topic and review our observations in the light of the interviews with professionals working in the field; anonymous mindfulness trainers’ criticism on the content creation process was especially in line with our

theoretical discussions. Based on these data, we do in fact observe that MBMAs are not free from the effects of enframing mode of technology.

So on the one hand, technology reveals the world in enframing mode and we perceive everything around us including ourselves as standing-reserve because of it.

On the other hand Heidegger argues that this revealing mode is ‘not merely human doing’ meaning we have no control over technology’s revealing mode; it has been unfolding in the enframing mode for centuries. He argues that enframing mode is the destiny of our epoch (Heidegger 1977 [1954]). But in Heideggerian terms, destiny does not equate to fate “where ‘fate’ means the inevitableness of an unalterable course.” Heidegger believes that we, as humanity does not necessarily obey this destiny:

“Always the destining of revealing holds complete sway over man. But that destining is never a fate that compels. For man becomes truly free only insofar as he belongs to the realm of destining and so becomes one who listens and hears, and not one who is simply constrained to obey.” (Heidegger 1977 [1954], 12)

If our destiny is not necessarily fate; there might be room for hope for a better relationship with technology than Enframing. Heidegger speaks of a better relation to technology via the concept of *releasement towards things* and *openness to mystery*; he argues that by achieving these conditions we can develop meaningful relations with technology (1966 [1959]). We will get into these concepts in the next subsection, however for now we must note that these two concepts can be viewed as precautions individuals can take rather than collective actions. Heidegger never speaks of coming of a technology that is freeing individuals from itself; rather he speaks of individuals' potential to free themselves from technology. In our next subsection we will look into designer intentions to see whether there is room for designer agency or not, and provide a deeper discussion.

5.4 Designer Intentions and Agency: Dynamics Between Company Culture, Designer Constraints and Affordances

We started with this thesis study with the primary question: How can persuasive technologies become *calmer*? How can a Persuasive Technology adopt qualities and principles of Calm Technology? For many, one of the first things that come into mind as

an answer to these questions is: simply *developing and designing* Persuasive Technologies with the principles of Calm Technology in mind.

One can easily argue that the problem lies within the design and production process; and people working on developing technologies can adopt these principles and create a calmer user experience. Same logic suggests if engineers and designers would set the goal to develop Calm Technologies; the end result would be Calm Technologies. Such an understanding of technological development roots from the misconception that technology is *solely* driven by humans developing it. It is based on the assumption that the end result of technological evolution is fully aligned with engineers', software developers' or designers' goals and intentions when working on these technologies.

However we see that many thinkers; including both professionals working in the field of developing technologies (see Harris 2018), as well as theorists that are working on the interaction between technology and society (see Habermas 1985; 1987; see Heidegger 1977 [1954]; see Marcuse 2006 [1964]) do not seem to agree.

For instance, in our earlier chapter (see Chapter 4) we have looked into an influential professional, design ethicist Tristan Harris' ideas on the issue; he argues (see 2018) that already existing establishments; such as the market structure, have immense effect on design choices. According to him, in an age where tech companies are competing for users' attention, certain design outcomes that seek user attention are inevitable; because companies are profiting off of it. Seeking user attention in a persuasive manner, is almost the opposite of the definition of Calm Technology; Calm Technology principles aim to create products that enable users to go back and forth between peripheral attention and central attention without demanding too much focus (see Weiser and Brown 1996; 1997; see also Case 2012). If we juxtapose these; we can conclude that Harris does not think it is possible to create Calm Technologies in such a market. This is an insider point of view coming from a professional actively working in the field.

On the other hand, there are also outsider points of views that correlate with these ideas coming from the theoretical field. For instance, Marcuse (see 2006 [1964]) is one of the well known theorists for arguing that already existing establishments impose their technological rationality onto individuals; as a result people become entrapped in one-

dimensional thought lacking critical thinking. In essence he argues that paychecks and employment become a new form of control. According to Marcuse, people who are well-integrated to consumer society, people who find meaning in their commodities –which may very well be the designers or engineers we are talking about– do not have the capacity to create change in already established systems. Another example would be Habermas' ideas. He is not as pessimistic as Marcuse, he argues change in humanity's ways is possible, emphasizing that we can create societies and technologies that function in a more humanitarian and egalitarian way. But similar to Marcuse; he perceives the logic of thought of already existing establishments to be the problem. According to him, *only if* we adopt communicative rationality in our institutions (see Habermas 1985; 1987), we can transform our way of living.

In sum, both the professionals working in the field, and theorists suggest that the answer to fixing the issue is deeper than designer intentions. But even without the scholarly explanations, it is not so challenging to understand that people working on technologies do not have full control on their work. After all, most of the engineers, software developers or designers do not develop technologies in their garages, they are people who have 9-5 jobs in a tech company. They are employees who are expected to reach certain goals; *set by their companies*.

Based on these observations, we have designed a set of questions to have a deeper understanding of the dynamics between designers' ethical perspectives, their intentions in the design process, company goals and the end result of their design processes. Put simply: we have investigated what happens when designers are asked to do things that they do not originally intend to; and vice versa: what happens when designer choices are constrained because of company policies.

Our empirical data suggests that these types of disagreements usually happen not in the design teams themselves but between different teams of companies; such as design teams and growth teams. Interestingly, the designers we have interviewed emphasized the role of open communication in these situations. In this subsection we will look into how differences of opinion are dealt with within these companies.

5.4.1 Disagreements between company teams in the design process

When we asked the designers participating in our study whether or not they have differences of opinion during the design process; they did not recall disagreements within their design team. But they all recalled disagreements between different teams of their companies; such as disagreements between the growth team and the design team.

So what do these disagreements look like? Two of our participants described their own experiences in a general manner, but one of our participants has given a very concrete example of that they encounter within the company. Looking into his example can give us a concrete understanding of the environment these apps are developed in. So let us have a look; the first thing he could think of was the requests of his company's growth team from the design team to increase subscription rates. He describes as follows:

“Since this is a business; differences of opinion happen all the time. For instance, we get requests from the growth team to increase subscriptions on subscription pages. After all, the company is trying to generate profit. So naturally, we carry out a lot of work on the payment pages to convince the users to subscribe. Lots of AB testing going on... Really, there are hundreds of tests. And they change country by country; tens of languages to be specific. Normally users are able to close the subscription pages but you can make the close page button visible with a 5 seconds delay. And place that button at the far corners of the page. These types of things... Completely Dark UX. Whenever there are requests like these from the product side, the stakeholders, or the growth side, we as the design team resist these requests.”

He explains further:

“Since we are designing for the user; and not the firm; I personally find these requests to be a bit more on the unethical side. While we are majorly concerned whether the user can use the product easily or not; and concerned with preventing issues for the user side, the growth team naturally has another attitude, something in line with: ‘Sure, users should be able to use it without issues but we should also earn money out of it too’. When these types of disagreements happen we usually try to meet in the middle ground. Because we are also product designers, not just UX designers, we have to think about these aspects of the company too and act accordingly.” (Anonymous Designer 02)

What our participant is describing about the subscription pages, is something we all commonly encounter on a daily basis. If you have ever downloaded a free app; you have

probably also encountered ads that you can not very easily skip. Free games on app markets usually use this to the fullest; whereas we see tech giants such as Youtube adopt this strategy too. We see that our participant considers these as elements of Dark UX.

Dark UX or dark patterns is a term highly adopted by the professional UX practitioners for describing deceptive design elements. The term was coined by Harry Brignull, a UXD consultant with a Ph.D. in cognitive sciences. Put simply, dark patterns are the “tricks used in websites and apps that make you do things that you didn't mean to, like buying or signing up for something.” If you think about it, most of us encounter these techniques on a daily basis on online platforms, Brignull explains: “I got the feeling that everyone in the design industry sort of knew these tricks existed, but nobody had ever taken the trouble to identify and document them properly. This is where the term ‘dark patterns’ was born. I wanted to pin a name on them and get people talking about them more.” Lately we see that the term is also adopted by HCI and law scholars (see Gray et. al 2018). If we look into what our interviewee is describing here: the attempt to increase subscriptions via the delay of an interface, we see that it can be categorized as “interface interference” which covers “manipulation of the user interface that privileges certain actions over others” (see Gray et al. 2018). So, our participants' outlook on such features being unethical is not just a personal preference of his; these kinds of features are both referred to as Dark UX by professionals in the field as well as by scholars working on PT.

If we turn back to our empirical data, based on the description of our interviewee we can observe that he does not approve of such techniques; so he does not originally intend to include them. What we perceive here is an intervention to the design process requested by the management team. This is not any news considering the critiques of creative industries; management and direction sides of technological organization of production are often criticized in this aspect. Marcuse (2006 [1964]) even argues that “domination is transfigured into administration.”

In traditional critical theory, creative workers such as designers are considered to be deprived of autonomy and alienated from their work because of profit-oriented conditions of production; whereas governmental (neo-Foucauldian) critiques assume employment is a new form of control and creative laborers have to conform the needs of corporate structures since they live paycheck to paycheck (Banks 2007).

These two views do not leave any room for autonomy of employees; but with the increasing ‘individualization’ there actually may be more room for autonomy of designers, as opposed to what these theories imply (Banks 2007). According to Banks the “individualization may be cultivating the conditions for an expansion rather than retraction of creative agency and ‘alternative’ cultural work practices.” He explains further:

“The assumption that the acquisition of external goods such as money, power and fame is now the primary motivator of cultural workers is implicit in critical theory and governmental critiques. When workers are faced with constant exhortations to become more entrepreneurial, promotional, business-like and self-directed, could it realistically be anything else? But, under individualized conditions, others have argued that the pursuit of internal rewards can provide just as strong an incentive to (cultural) work than the accumulation of external goods.” (Banks 2007, 108)

Management teams’ role becomes to transfigure the creative work into something sellable; but creative workers do not necessarily have to comply:

“The role of the manager is to try and control and temper the capricious creative to corporate accumulation imperatives – this may be easier in some cases than others. Some workers, we might surmise, may choose to prioritize the goals of their paymaster. The requirements of capital for profitability (through saleable commodities) and continued accumulation (guaranteed by incomes from formatted and standardized products) may encourage cultural workers to adopt or endorse production methods that vitiate against free expression, experimentation and creative innovation – in return for wages, royalties, continued employment, or maybe even, in time, wealth and fame. Alternatively, the enduring aspiration amongst workers to invent or create cultural goods may be driven by non-economic, ‘irrational’ motives such as the simple desire to make art that reaches ‘beyond’ the accumulation imperative and the trappings of material necessity. A compulsion for the production of beauty (or even the production of ‘social’ goods) may outweigh the necessity of production for profit.” (Banks 2007, 9)

If we turn back to empirical data, we observe these gray areas Banks (2007) describes; rather than blacks and whites the critical theory or governmental approach suggests. Our participant’s experience is an example of negotiation. He also emphasized that he can not just act as a UX designer; meaning just designing for the user needs but he also needs to act as a product designer taking the companies needs into consideration. To clarify, I have asked him to explain further:

“As a UX designer, our main goal is to create a product that all users will *enjoy and use painlessly*, but as a product designer, we should also think about the business side. In other words, you have to do the best for the company, the product, as well as the best in terms of UX. This is very difficult. For instance, as a UX designer; popping up a pop-up window all of a sudden out of nowhere is *very counter-intuitive*, but for a product designer, it is *natural*. Because there are points you want to achieve such as growth success and product improvement. This is what I try to do in my life in general: I try to find the middle ground between both. It's not that easy, but I'm trying to find balance between the two. [...] Because even if some feature is not that good for the business but it is good for the users, we have to connect these two dots and find a way; or vice versa... I think that is the right way to move forward.” (Anonymous Designer 02)

Looking at this concrete example our participant has shared with us shows a lot to us about the decision making process within these companies: when we are dealing with the development of a specific technology, an MBMA in our case, we are not dealing with an individual's decisions but we are dealing with a corporate structure. Our participant has stated that his strategy in these types of situations is trying to find middle ground. Even though he is requested of something he does not intend to do originally, it is interesting to see that he had a very positive outlook. His words suggest it is because he is not forced to do what is requested but has open lines of communication to negotiate.

5.4.2 Company culture of MBMAs: designer agency by-design or designer agency by-nature?

One can easily argue that this only represents one specific event; but interestingly our empirical data shows that *all of our participants* emphasized the open communication they experienced in their firms. Here is another example from our participants explaining his experiences with differences of opinion within the design process. He noted that he felt there was better communication at this company compared to his former experiences in other companies:

“Since these are multidisciplinary teams; there are always people who do not understand much about design... They are working with the customers or they are in the marketing team, communicating with the customers directly or through the application et cetera... Even though they do not understand much about design; they always have a comment... Because everyone has something to say about design these days... Everyone, in quotes, understands

design, you know... I've had this problem in many companies; but in this company not so much... Everyone is willing to learn... I have the feeling that everyone tries their best. It is nice, it has an organic structure and it is really nice to work in a multidisciplinary environment with an open mind.” (Anonymous Designer)

It is important to note that; our participant was not working with the MBMA he was referring to at the time of the interview; he had switched jobs. But he still emphasized the positive environment anyway. So one might assume he had both the reasons and the freedom to complain about his former company but he was emphasizing how good his experience was even though we did not ask such a question. Here we can see another designer similarly describing his working environment:

“If at any point, you have an idea, or you are onto something and have a different outlook; no one raises an eyebrow. Even if your idea is terrible, still no one raises an eyebrow. So there is this side to it; this lets us discuss everything freely within the company. There are many points that we as designers intervene in the process, and there are also many points where managers intervene in the process too, naturally. Sometimes we discuss our ideas but don't carry them out. So we meet in the middle ground.” (Anonymous Designer 02)

The most significant pattern we see here is the designer's positive experience with the *MBMA firms* they are working with. It is an interesting finding; because the diverse backgrounds of the professionals we interviewed does not indicate there should be parallels. Put simply, one of our participants was working in Meditopia at the time of the interview. Another participant had prior working experience in Meditopia but at the time of the interview he was working in another company. At this point, common sense suggests that the firm Meditopia might be offering very good working conditions for employees; but another participant was working at Calm and he was also very fond of his firm too. In all of the interviews we have conducted with designers, we have seen that they emphasized open communication repeatedly.

Could these designer's overall satisfaction can be related to the fact that they are working on mindfulness, itself? Even though we did not include such a question; one of our participants mentioned how they as the employees of the company can benefit from the services the company offers to the users. He explains:

“I don't know if other companies have similar practices, but our company takes time to care for our mental health, as employees, too. For example, everyone has a short 10-minute daily

meditation scheduled on their calendar every day. Our meetings never overlap with those; those ten minutes are truly reserved. Usually, our company offers content specifically planned and designed for that day. For example, at the beginning of each monthly meeting, a ten-minute meditation session is held, and I think the effect of this is really visible in the meetings. So, when two hundred people at that Zoom meeting, meditate together and get away from everything they've just been doing, calm down and attend that company meeting with a clear mind; it leads to better ideas, openness to change, and many other positive things.” (Anonymous Designer 03)

Naturally, as we see in this example, these companies are adopting mindfulness to their work environment too. In this example we see that our anonymous participant associated the calm and open communication in the company with the mindfulness sessions they have. Earlier, we have also seen that another participant compared his former experiences in different companies; such as e-commerce companies or social media companies and concluded the work environment was better in the MBMA company. Therefore the data suggests there is a high chance that the subject they are working on has an effect on their experiences as employees too.

At this point it might be beneficial to bring a point of view that investigates the dynamics between technology and society to enrich our discussion. What our participants are describing up until now seem to resemble a concept Habermas has developed: communicative rationality (see Habermas 1985; 1987). Put simply, communicative rationality prioritizes human emancipation and aims to find solutions to problems for everyone's benefit, not just the industry; the other side of the coin is instrumental rationality, which is goal-oriented and strongly based on objectivity. As a reminder, we have discussed a similar concept earlier calculative thinking

If we turn back to our empirical data, the use of PT to increase subscriptions is a great example of instrumental rationality. It is focused on the end-goal of making profit; whereas setting the actual process of making this possible aside. Persuading users to subscribe to a service they do not actually need or want does not seem like a user-centered design process; instead it seems to benefit the industry solely; therefore representative of instrumental rationality.

However, our participant told us that they as the design team negotiate in those types of situations. It is important to note that this negotiation is not based on power exchange;

our participant has explained that in those types of situations they have conversations based on sharing expert opinions. As a reminder, another participant also mentioned that there are always people who try to intervene in the design process in every company but in the MBMA firm “everyone seemed to be willing to learn” and he “had the feeling that everyone tried their best.” These data suggest that even though the initial requests of increasing subscriptions are rooted from instrumental rationality, these companies also have room for open communication and discussion. Our empirical data seems to showcase something resembling communicative rationality whereas individuals negotiated to not perform certain tasks that they do not consider beneficial for users. We do not observe that designers fully lack autonomy complying with top down orders; instead, they stand their ground explaining the disadvantages and advantages from a design perspective to non-designers. This might be interpreted as a sign of the transformation from an already existing structure of instrumental rationality into communicative rationality.

On the other hand, it is also possible to look into these types of situations in terms of *calculative thinking* and *meditative thinking* too (Heidegger 1966 [1959]). A Heideggerian reading would suggest that use of PT techniques just to increase subscription rates; in order to persuade people who originally do not intend to subscribe strongly indicate calculative thinking and a lack of meditative thinking; which he refers to as ‘thoughtlessness’ as a whole (see Heidegger 1966 [1959]). However at this point it is important to note that Heidegger has not developed these two concepts to discuss disagreements in a corporate environment. In fact he does not speak of what would happen if individuals in the mode of ‘meditative thinking’ would act in such environments at all; instead his criticism is more general, he criticizes the state of humanity as a whole when he speaks of a lack thought, lack of meditative thinking; whereas Habermasian approach is more focused on the dynamics between already existing structures and transforming those.

If we turn back to our empirical data; we actually observe that one of our participant has experienced great sense of autonomy when the design process has completely changed after his arrival in the company, due to his proposals:

“All that I have told so far [referring to conducting a design process respectively doing user research, design ideation, user testings, design revisions] were actually ideal processes. When I first came in, the process was different. But thankfully, since the founders are really understanding people; when I proposed to them this sort of process; when I explained the benefits of having such a design process; they quickly embraced it and put it into operation. And they too try to abide by it.” (Anonymous Designer 02)

Based on his description data we can say that our anonymous participant has experienced a great amount of designer agency in this aspect. He was able to intervene and change the *design process itself*, offering a new approach. But there is also another side of the coin. Even though his operational approach was quickly embraced by the management team, there are other constraints limiting the process. He explains:

“Sometimes, let me say 30% of the time, there is work that is carried out in a hurry, since we are a start-up company. Which, in fact, is quite natural. Things in line with: ‘We have to get this done quickly, we have to finish this at this time, we need to test it right now and work on the details’ happen... in those cases things move a bit fast. User tests, proper research... occasionally there are times when you can’t really carry out these. Of course, we wouldn’t want this to happen but naturally, it does happen, it will happen. Because we are not a 100-employee team. Our product isn’t as big as Facebook...” (Anonymous Designer 02)

It is an important point for our research because it showcases that even when a company adopts an open communication culture, even when a company provides great autonomy to a designer by providing room for structural changes as he sees fit; there can be other constraints, such as the company size, limiting a designer's actions.

Based on this empirical data, we can conclude that designer intentions and agency have complex dynamics. On the one hand designers can be requested to perform what they do not intend to, on the other hand we have seen that they can negotiate in these situations. Also, we have seen that one of our participants had a great degree of agency, intervening with the design process itself. Even though he experienced great agency when proposing a structural change, he also encountered other constraints such as the company size that he can not intervene.

5.4.3 A Heideggerian reading of designer agency in MBMA firms

So far we have looked into empirical data and provided diverse theoretical readings including; culture industry and creative labor, critical theory and governmental approach. We especially looked into Habermas' concept of communicative rationality since it was the best concept explaining overall designer satisfaction in MBMAs and their appraisal of the open communication culture they are experiencing in their firms.

As we mentioned earlier, Habermas emphasizes that if people understand the human power and potential for reasoning; we can transform societies to more humane and more just societies (Calhoun et al 2002). Habermas has hope for humanity to change its ways. He is not pessimistic like other critical theorists; in fact he criticizes other theorists associated with Frankfurt School for being excessively pessimistic (Calhoun et al. 2002). Habermas argues that we can shape technological development as we see fit *if* we adopt communicative rationality. Can mindfulness be a key component of his concept of communicative rationality? Let's look into one of our participants words again:

“[...] when two hundred people at that meeting, meditate together and get away from everything they've just been doing, calm down and attend that company meeting with a clear mind; it leads to better ideas, openness to change, and many other positive things.”

(Anonymous Designer 03)

I must note that at the beginning of this thesis study; we did not hypothesize to find such an effect of mindfulness practices on overall company culture. Therefore we have not designed our research questions to look into this possibility. As a result, our empirical data can not answer the question of whether mindfulness is a key component of communicative rationality or not; but it indicates that mindfulness can be a factor. If we were conducting this study in a Habermesian framework; we could argue that the key to calmer technologies is communicative rationality based on our empirical data. On the other hand, Heidegger's philosophy of technology does not consist of such a concept like communicative rationality. As we mentioned earlier Heidegger's concepts of calculative thinking and meditative thinking have parallels with an Habermesian reading but they are offered as individual precautions against technology's influence, instead of collective action.

In fact, Heidegger strongly argues that people developing technology do not have control over it in this sense. As we have discussed earlier; Heidegger argues that humanity has a role in driving technology forward but the revealing mode of technology “is never a human handiwork.”

“Since man drives technology forward, he takes part in ordering as a way of revealing. But the unconcealment itself, within which ordering unfolds, is never a human handiwork, any more than is the realm through which man is already passing every time he as a subject relates to an object.” (Heidegger 1977 [1954], 8-9)

According to Heidegger, modern technologies' enframing effect is not under control of humanity in anyway; it is ‘no merely human doing’ (Heidegger 1977 [1954], 9). Therefore, enframing should be taken into account as it is: it challenges humanity to think in the mode of ordering, ‘ordering the real as standing-reserve’. And it is not human doing; meaning it is out of our hands. Earlier we have also noted that Heidegger refers to this as *destiny*. So, Heidegger argues that one can not drive technology in the sense Habermas argues.

But where does this bring us in terms of Heideggerian reading? In sum, Heidegger’s philosophy of technology suggests that modern technology's mode of revealing is enframing *and* as long as it is we are bound to perceive everything, even ourselves, as raw material for our projects, having no control over it. Does this mean there is nothing to do to change the path of technology? In short, the answer is: No, there are things that release us from this relation with technology.

Unlike Habermas, Heidegger finds the solution to be on an individual level; he speaks of releasement towards technology rather than a collective adoption of a mode of thinking, or rationality, to change already existing structures. According to Heidegger for starters, one can only be *free from technology* if one is open to its essence; and one can be open to technologies’ essence through a certain mode of living; if one “opens his eyes and ears, unlocks his heart, and gives himself over to meditating and striving, shaping and working, entreating and thanking.” But more importantly, he introduces another concept when speaking of a more meaningful relationship to technology: *releasement towards things*.

Before getting into this concept, it is important to note that the German word translated into English as releasement towards things is ‘Gelassenheit’ and has many meanings. Its

use in German nowadays means ‘composure’, ‘calmness’, and ‘unconcern’ but it has a history of being used by mystics ‘in the sense of letting the world go’ too (Translator notes in Heidegger 1966 [1959], 54). An interesting side note in our context, because we have started this study with the question: How can PT become calmer? And Heidegger’s choice of word is calmness too; when describing a more meaningful relation to technology than the current state. So one might wonder, what does this concept of releasement towards things entail? When speaking of releasement towards things; Heidegger emphasizes that he does not mean abandoning technologies once and for all:

“For all of us, the arrangements, devices, and machinery of technology are to a greater or lesser extent indispensable. It would be foolish to attack technology blindly. It would be shortsighted to condemn it as the work of the devil. We depend on technical devices; they even challenge us to ever greater advances. But suddenly and unaware we find ourselves so firmly shackled to these technical devices that we fall into bondage to them.” (Heidegger 1966 [1959], 54)

A balanced relation with our technological environment is possible:

“We can use technical devices, and yet with proper use also keep ourselves so free of them, that we may let go of them any time. We can use technical devices as they ought to be used, and also let them alone as something which does not affect our inner and real core. We can affirm the unavoidable use of technical devices, and also deny them the right to dominate us, and so to warp, confuse, and lay waste our nature.” (Heidegger 1966 [1959], 54)

He quickly adds:

“But will not saying both yes and no this way to technical devices make our relation to technology ambivalent and insecure? On the contrary! Our relation to technology will become wonderfully simple and relaxed. We let technical devices enter our daily life, and at the same time leave them outside, that is, let them alone, as things which are nothing absolute but remain dependent upon something higher. I would call this comportment toward technology which expresses ‘yes’ and at the same time ‘no’ by an old word, *releasement toward things*. Having this comportment we no longer view things only in a technical way. It gives us clear vision and we notice that while the production and use of machines demands of us another relation to things, it is not a meaningless relation” (Heidegger 1966, 54)

But what does a meaningless relation mean? With the ubiquity of technology, we are blinded to the meaning it carries. Our communication technologies are so advanced that we can instantaneously communicate with people all around the world; and yet we are

not neither amazed by it nor careful about it. What Baudrillard (2005) refers to as *the ecstasy of communication*. We do not take the time to contemplate on what we are communicating. It is the contrast between texts and letters, whereas letters were a technology that enabled the careful contemplation we long for.

If we turn back to our study case, MBMAs, we see some clues of such slow and careful contemplation through these technologies. For instance, MBMAs enable us to participate in mindfulness practices simultaneously with thousands of people all around the world. But neither the possibility of communication nor instantaneity of it is emphasized; none of the apps we are looking into took this as a socialization opportunity even if they could. They could have; because social cues are highly persuasive; we have mentioned that the mindfulness trainer participating in our study gave this as an example from another app. Instead, empirical data gathered with CMDA, as well as the interviews show that there are design elements to draw attention to the situation in a *calmer mode*; drawing attention to the connectedness of people through shared experiences; rather than instant communication or persuasive socialization. So in a sense, we are already observing clues of design that enable individuals to operate through the compartment of *releasement toward things*.

As mentioned earlier Heidegger himself never argued for a need for *technologies themselves* encouraging the releasement toward things. According to Heidegger, if one lets technology be technology and hold oneself apart from it, then an openness to its essence takes place; he refers to this as *openness to mystery*; opening enough room to establish a meaningful relation. The meaning is still unconcealed, we only know that *it is there, it has some meaning* “because it is something that simultaneously shows itself and withdraws” (Verbeek 2005).

In sum, cross-readings including theoretical and empirical data show us that the dynamics required to develop calmer persuasive technologies are indeed complex. So far we have provided a theoretical analysis of the current state, the next step would be contemplating on what could be and should be done in the current situation. Since we have interviewed professionals working in the field, we also had the chance to ask the question directly to the ones playing a role in the development of these technologies. In the next subsection we will look into what professionals think should be done for improvement in the field.

5.5 Perspectives on the Future of the Field of Mindfulness Training and Technology Mediation: What Should be Done?

Interestingly enough, when we asked designers participating in the study, questions like “What should be done in the field for the future? What is missing in the field?” and questioned what they wanted or expected to see in the near future; we have seen that their visions consisted of general changes in society instead of specific developments in technologies and design. For instance, one of the designers explains as follows:

“Here is the most important thing: I think the biggest difference between companies is how they approach the same goals from different perspectives. For example, Headspace has a number of content specifically focused on understanding the mind. On the other hand, Calm is trying to offer content that is more guided; like sleep stories make it easier for you to fall asleep. Meditopia; aims to appeal to different cultures and produce more local content. These are all different approaches, good purposes. But I think the most important thing here is that everyone somehow understands more or less how their mind works, so that they can have some control over it. I wish we lived in a world where everyone can stop long enough to understand what they are feeling and why. And they can be open about this both with themselves and with those around them. For this, applications that offer tools are important. But on the other hand, it is very important for everyone to be able to work on themselves on their own. And to be able to do this, perhaps we need the support and contribution of societies or even states.”

He continues:

“For instance, such mental health practices and such services are covered by insurance in the USA. It's like that in Europe, too. Mental health in Turkey... It is partially covered by insurance. In Turkey if you go to a doctor that recommends meditation; you will be perceived as going to a ‘headshrinker’... So I think this needs to change at a societal level. It is very important mental health is discussed in a way that resolves some existing issues; to lay down a basic understanding.” (Anonymous Designer)

Up until now we have provided many different theoretical perspectives in terms of technology and society’s interaction and exchange. Since we are conducting this thesis study in the Heideggerian framework; we have discussed the essential concepts of *revealing* and *enframing* as well as his concept of *releasement towards things* and *openness to mystery* as an example of calmer interaction of technology and individuals. On the other hand we have also made cross-readings; one of the most significant one’s

being Habermas' concept of communicative rationality. We have argued that some of the data we have gathered via interviews indicate a relation between mindfulness practices and Habermas' communicative rationality and suggested further in-depth look might be gained by future studies and be beneficial for the field.

On the other hand, while we were so focused on the dynamics between technology and society, we did not emphasize what our participant is emphasizing here in our discussion: the issues with the perception of mindfulness practices itself. We have briefly looked into them in our literature review (see Chapter 2), and it is a good point to remind them again. Mental health and mindfulness practices are vulnerable topics; and how they are perceived depends on cultural background; it would be naive to think that the future of the field only depends on the dynamics between technology and society.

If we turn back to our original question of the future of MBMAs, mindfulness trainer that participated in our study had more comments leaning on the tech side. When we asked about her vision for the future and her comments on what can be improved in the field; her emphasis was on the possible changes in technologies and design. She responded:

“Hmm... What could be improved? Frankly, I would like to interpret improvement as simplification. I think it can be simplified... And this field can calm down...” (Anonymous Mindfulness Trainer 01)

The choice of words is interesting here; none of the designers have mentioned the field should *calm down*. We have started this thesis study with the question: How can PT become calmer? Of course, it would be a stretch to think our participant here is directly referring to the term Calm Technology; however her understanding of *calming down* correlates with the professional terminology. Her choice of words shows how the term itself is beautifully formulated and how intuitive it is. When asked to explain more she responds:

“For example, there are many categories, there are many options [on the Mindfulness-Based Apps]... These may be reduced. As far as I know, most of the apps have a lot of content; there are stories, guided meditations, this and that... These are okay, there is no problem with them. But as a professional in the field and a content creator, I think a platform teaching people a practice should also include guidelines and give information about the techniques. And I also think that an application should have a very... Very solid intellectual background. Research

on these topics, interviews... I think apps should have these features to the fullest...”
(Anonymous Mindfulness Trainer 01)

The mindfulness trainer's view contributes highly to the discussion because it is an outside view to the field of design; whereas it is an expert view on mindfulness training. It is very interesting to see that; we received this type of constructive criticism from a mindfulness trainer instead of the designers. People outside a field have the ability to pinpoint the pain points as they have a wider outlook on the field itself and they are not focused on the specifics. After listing these things in her mind; mindfulness trainer added one last thing to her list to improve the field; referring to her previous bad experiences with writing guided-meditation texts for apps: “That's all I can say... Perhaps one more thing for applications: the voice acting must be very good [Laughs]” (Anonymous Mindfulness Trainer 01). Maybe this sentence might seem insignificant at first sight; but on the contrary, it is a perfect endnote for summing up our study. Because she was referring to one of her frustrating professional experiences of writing guided meditation texts for apps.

We have discussed this earlier in this chapter as well as the others; technology mediation has always the risk of reducing an experience to something it is not; it always has the risk of taking something away from the experience itself. Perhaps one of the most important things to create calmer technologies is being aware of this risk and doing our best to keep the experience true to itself.

Keeping the experience true to itself translates into *authentic being* in Heideggerian terms (1962 [1927]). As we mentioned earlier, Heidegger's authenticity is different from the common understanding of the word, which is usually perceived as being true to oneself. Heideggerian authenticity is about being fully human without effort, and being open to mystery as well as truth. Revealing and Enframing (see Heidegger 1977 [1954]) are significant not only in the context of our technology analysis, but they are also significant in relation to authenticity. As the persuasiveness of apps by-design increase, as people in these systems either content creators or users are perceived as standing-reserve; the experience MBMAs offer, seem to move away from mindfulness practices themselves; seem to lose touch with authentic being.

Individuals have the potential to establish calmer interactions with technology via practicing *releasement towards things* and *openness to mystery* (Heidegger 1966 [1959])

whereas the ones developing technology are not excluded from this opportunity. If they do, there are other possibilities much wider than the horizon we discovered here. Heidegger himself has never argued about a need of technology driving this relation and encouraging *releasement towards things*. However in such an interactive age we might be witnessing the beginning of such an era.

As communication technologies get more and more widespread; individuals, either the users and customers of technologies or the professionals in the technological field have started to voice their concerns more clearly. As a result, now we see platforms like Youtube or Instagram establishing infrastructures to remind users that they have spent *too much time* on their platforms. Designers coming forward, in interviews, documentaries, podcasts expressing regret about inventing certain features such as: likes, or infinite scrolls; after seeing the damage these causes on people's mental health.

Whether this reflects the awakening towards human potential for reasoning Habermas describes (see Habermas 1985; 1987; see also Calhoun et al. 2002), or not, is debatable. We do not know whether the attempts of tech companies are truly by products of communicative rationality or not. They may still be rooting from instrumental rationality, and be an attempt to survive in the market. Even though we can not draw conclusions on tech companies goals, our qualitative data indicates a possible link between communicative rationality and mindfulness practices itself. Which might be interpreted as one of the ways how instrumental rationality might be replaced by communicative rationality. Of course, we can not draw such strong conclusions based on our empirical data. Even though it is qualitative, our sample size is small. In addition, we have not designed our research to investigate this possibility. But the qualitative data strongly suggests the possibility of links which may be noted for further research.

Same applies to Heideggerian concepts of *calculative thinking* and *meditative thinking too* (see 1966 [1959]). Even though MBMAs core function can simply be considered calming people down to open room for attention to the self, we see that they are still in the revealing mode of Enframing. Which does not come as a surprise for ones familiar with Heidegger's philosophy of technology; since technology, whether or not designed with best intentions, technology is never 'merely human doing' (see Heidegger 1977 [1954])

On the other hand, since mindfulness practices themselves have so many parallels with concepts of *authentic being*, *meditative thinking*, *releasement towards things* and *openness to mystery* (see Heidegger 1966 [1959]) and since tech companies working on mediating these practices have links with these practices inevitably; we see blacks and whites together. When we isolate features we see Enframing in some; whereas others do not resemble Enframing at all; in fact we observe some features encouraging authentic being, meditative thinking, releasement towards things and openness to mystery. But one thing is for sure; even though we observe isolated features that are more in peace with meditative thinking, technology still seems to unfold in the revealing mode of Enframing; after more than six decades Heidegger published his initial concerns on the issue. Technology getting more persuasive, over the years, did not seem to help it. We have established many different thinkers' calls to find calmer ways to relate to technology, in a way these can be considered echoes of Heidegger's concerns about enframing. Not only a need for developing Calm Technologies (see Weiser and Brown 1996; see Weiser and Brown et al. 1997) still persists; but also, our theoretical discussion shows that this need was apparent, even long before they were voiced by designers in the 1990's. That is why, translation and exchange between all the fields we have presented in our study has become essential than ever before.

6. CONCLUSION

As the number of research showcasing links between digital technology use and mental health problems increase; the number of designers that come forward in documentaries (see Scott 2017; see also Orłowski-Yang 2020) or podcasts (see Harris 2018) expressing concern as well as remorse and regret about developing persuasive features are also increasing. The current situation has been foreseen and the need for calmer technologies has been voiced very early (see Weiser and Brown 1996; see Weiser and Brown et al. 1997); based on the observation that technology would get more and more ubiquitous in the coming years. But, the field of Calm Technology did not gain much attention; instead the field of Persuasive Technology has picked up pace and has been trending over the years. So we have begun this thesis study with the question: How can Persuasive Technologies become *calmer*?

As a reminder; at the beginning of the study, we have noted that this is a very broad research question. And, we have noted that we aim to discover the current situation and conditions concerning the development of Persuasive Technologies; and how these can be changed in order to create calmer human-computer interactions by asking this question. Since it is a broad question; we have proposed secondary questions.

As a reminder; firstly, we have pointed out there are no guides to evaluate technologies that are both calm and persuasive and we asked: How do the degrees of Calmness and Persuasiveness relate to each other in systems intentionally designed to change attitudes and behaviors? Secondly, we draw attention to the fact that since PT is a subtopic of DWI (Lockton, Harrison, and Stanton 2008) and a perspective without designer intentions would be lacking and therefore asked: How do designer intentions and agency play a role in technology becoming calmer or more persuasive? And lastly, we have argued that what is missing from the field is the consideration of the dynamics between technology and society and asked: How does technological evolution on a broader scale play a role in technology becoming calmer or more persuasive?

Within this scope we have taken MMBAAs (Mindfulness-Based Mobile Applications) as a case study; mainly for two reasons. Firstly because, MBMAs need to refer to Calm

Technology principles some way or another by definition. Put simply, if they adopt persuasive strategies that are distracting; it would contradict their core function. But secondly, MBMAs are highly persuasive by definition too. Since they are intentionally designed to change the attitudes and behaviors of their users; their persuasiveness is embedded in their core function too. Based on our theoretical insight, we hypothesized that we would encounter features that are *both calm and persuasive*, as well as features that are *highly persuasive but not calm*. Choosing MBMAs for an in-depth analysis enabled us to have discussions on the calmness of features; and make comparisons of concrete examples, which is essential for the quest to discover calm ways of persuasion. But, concrete examples only show results of a design process; although they are essential, when looked into alone they do not fully answer our research questions.

For all these reasons, we have adopted two methodologies. Firstly, we have conducted CMDA (Critical Multimodal Discourse Analysis) on three MBMAs; Calm, Meditopia and Headspace to look into concrete examples in-depth (see Chapter 4). Secondly, we have conducted EIs (Expert Interviews) with designers that are working on these apps, and another one with a mindfulness trainer that has no ties with these firms (see Chapter 5). These interviews helped us to develop an understanding of the design process of these apps and designer intentions throughout the design process; as well as helping us to gain insight on a critical outside point of view coming from a mindfulness trainer that does not play a role in development of these technologies. Since our focus was the calmness of these technologies throughout our study, we were focused upon the experience these technologies are assumed to offer; as well as the possible ways users experience these design decisions on these platforms, either persuasive or calm.

Throughout this thesis, we have adopted critical theory of technology as a framework and discussed our findings from Heideggerian (1962; 1966; 1977; 1995) Habermasian (1985; 1987), Marcusean (2006) points of views. As a reminder, we mainly leaned on Heideggerian philosophy of technology; amongst other theorists, because Heidegger's philosophy of technology suggests that every technology is *inherently persuasive* whether or it is intentionally designed that way or not. Such a point of view enables us to discuss, not only the intended effects of PT but also the unintended effects on individual or even societal levels; discussing these unintended effects is what PT field has been lacking so

far. On the other hand, looking at concrete designs from these theory-based approaches was a challenging task. In essence, the main focus of these theorists have never been comparing specific concrete technologies; instead they were focused on the dynamics between technology and society. Therefore, we have also leaned onto PT literature and contemporary theorists; bridging the gap between theory and practice.

Since we have three secondary research questions, our findings can be grouped under three categories; relations between persuasiveness and calmness of technologies; designer intentions and agency; and relations between technological evolution on a macroscale and society.

Our findings concerning the relations between persuasiveness and calmness of technologies were mostly based on CMDA data; but we have also supported our arguments via interview data too. Firstly, and unsurprisingly, our CMDA data has showcased that MBMAs are fully packed with persuasive strategies aiming not only at helping users to practice mindfulness but also aiming at habitual use of these apps. Our findings about the calmness and persuasiveness of all of these features were very divergent, therefore it is impossible to sum up all of them in this conclusion chapter. However we can quickly remind the most significant points.

In essence, we observed that these apps act as *all* of the three basic PT forms; PT in form of social actors, PT in form of media and PT in form of tools (see Fogg 2003). They act as social actors by *personifying* their platforms, offering an interaction resembling human-to-human interaction rather than HCI (Human-Computer Interaction). They act as media by offering *simplistic virtual spaces*, to both train and practice mindfulness. And lastly, they act as tools, by increasing the capability of their users to build a habit of practicing mindfulness; whether it be pre-set reminders or enabling journaling to see ones progress or other similar strategies.

We have also noted that many persuasive elements aiming at habitual use, reduction strategy (see Fogg 2003); reducing the target behavior into smaller tasks. These inevitably have an effect on our time perception making us perceive time in a goal-oriented way; and must be analysed in terms of the acceleration of time since they are designed to build a habit. Normally, one would not expect an MBMA to encourage this type of goal-

oriented perception of time; since mindfulness practices require one to focus on here and now without judgement (see Kabat-Zin 2003; see also Chapter 2). However we observed that, MBMAs are not independent of the overall technological trends and generally reveal time as if it is made of modular blocks, one following the other.

Although we observed the intention to create a habit of these apps in users, in many features; the most obvious examples were features specifically designed for encouraging daily use; such as the feature titled ‘Build a Habit’ on Meditopia app, another one called ‘Daily Calm’ on Calm app; or a more subtle version of these on Headspace homepage without a title (see Chapter 4). Unlike the other persuasive design elements, these persuasive features were transparent; their aim of building a habit is pretty visible for users; in short, it is in title. There are some studies concerning whether PT would be more ethically permissible if it is more transparent, revealing their persuasive nature to users; to increase user autonomy by ensuring voluntary participation in the persuasion attempt. As a side note revealing of persuasive nature to users is especially important in the context of potentially vulnerable users (Jacobs 2020); which is our case with MBMAs. We observed that although these indicate a potential result of habitual use via their titles, there was no information for users about the persuasive techniques embedded in these user experiences; as these PTs reveal their persuasive nature aiming for habitual use, these apps stand on the transparent side; but if they conceal their persuasive nature they are less calm. We took this argument one step further with Heidegger’s concepts of *ready-at-hand* and *present-to-hand*. When these apps are acting as tools to build a habit, as equipment, we argued transparency means being perceived functioning smoothly without revealing their persuasive nature; but as soon as they become *ready-at-hand*; as soon as they are set aside, and not used to actively practice; transparency means revealing their persuasive nature fully, providing information (see Van Den Eede 2010).

Based on these observations we concluded that calmness and persuasiveness of technologies have close links with how they affect their users’ perceptions of temporality and spatiality. We observed that, persuasive strategies that aim to build a habit usually have the potential to contribute one’s own sense of lack of time and perceived fast-pace of life; whereas persuasive design elements that are more dominantly spatial, seem to offer calmer experiences.

If we move onto findings about designer intentions and agency; we must note that heavily leaned on the expert interviews to form an understanding about these factors. In sum, interview data suggests that designers' are highly motivated by positive changes users achieve by using these apps; these positive changes are reported by users themselves via app ratings, one-on-one user research. In essence, designers view MBMAs as healthier alternatives to other persuasive mobile apps. They view them as technological tools that can enable people to build healthier habits such as mindfulness; as opposed to other platforms which seem to encourage mindless digital consumption. In addition, designers working on MBMAs do not seem to be fond of unethical applications of PT such as Dark UX. So we do in fact see that *designers' intention* to build technologies that are beneficial for users, that help users create positive changes is more dominant compared to their intention to build persuasive interactions.

On the other hand, the data suggests that designer's are requested to increase subscriptions or user engagement etc. by growth teams or management teams; which eventually may lead to adoption of Dark UX features. Designers emphasized that their design process in such cases is 'data-driven'. In this aspect, we have observed that designers' do not have full autonomy. This shows a parallel with theorists' concerns about administrative or managerial sides of businesses becoming a new form of social control (see Marcuse 2006 [1964]). We noted that such a point of view would also have parallels with Heideggerian philosophy of technology (see 1977 [1954]) because it suggests that even though people working on developing technology partake in the process of technology revealing itself, they do not have full control over it.

On the other hand, we also observed that designers shared many instances that showcased great designer autonomy too. So findings were divergent. For instance one designer we have interviewed completely changed the design process as he sees fit after his arrival to the MBMA company he is working with. Designers have also mentioned that not all constraints come from the managerial side, sometimes their team is too small, or sometimes the budget of their companies constraint them.

Interestingly none of the designers we have interviewed did not complain about their limitations; especially in the aspect of managerial constraints. They all have strongly emphasized that they have open lines of communication to negotiate in these situations

and are satisfied with their working environment. At first sight, this might be interpreted as creative self-exploitation (see Banks 2007); in which creative workers are so satisfied with the creative process they do not focus on their bad working conditions. But our empirical data suggest otherwise.

All of the designers we have interviewed have emphasized that they experienced a sense of *increased autonomy* in MBMA firms, *compared to their prior experiences* with other firms. They all expressed satisfaction with the open communication they have experienced within these companies and mentioned that open communication is encouraged in their work environment. This is one of the most significant findings of our study. In essence, we have not asked the participants to compare their work in MBMA firms with their prior experiences in any way. We only asked about how they deal with differences of opinion *in their firm* during the design process. Three design experts have responded to these questions in the same manner by comparing their experience with the prior firms they have worked for; and all of them emphasized that their work environment in the MBMA firms they are working for is much better.

As a reminder, one designer was working in Calm at the time of the interview, the other two were Meditopia employees; therefore this finding is not specific to one company. One participant explained that he believes adopting mindfulness practices in the workplace itself has a significant role in building such a work environment. He further explained that practicing mindfulness at work everyday, on pre-scheduled times; as well as before meetings; has a positive effect on overall communication culture within the company; and stated that it causes openness to change.

These findings can be discussed mainly from two points of views; Habermasian or Heideggerian. A Habermasian view would suggest that these instances that designers describe as open lines of communication or negotiation is representative of communicative rationality over instrumental rationality (see Habermas 1985; 1987). Adopting communicative rationality, and valuing communication over persuasion or domination; would not just create meaningful relations to technology but also create a more just, more egalitarian way of living (Habermas 1985; 1987). Although Heideggerian and Habermasian views do not directly overlap; Habermas's concepts of communicative rationality versus instrumental rationality share some similarities with the Heideggerian

concepts of meditative thinking versus calculative thinking. A Heideggerian view would suggest that what experts are describing as open communications lines or openness to change is representative of meditative thinking over calculative thinking (see Heidegger 1966 [1959]). Meditative thinking encourages releasement towards things is the basis of a meaningful relation to technology; it encourages one to be mindful of the technology being used and ensures one to be open to the mystery of the technology at hand. (Heidegger 1966 [1959]). These relations with technology are set by people interacting with it; but what we observe here is that these relations may as well be set by people who are working on it. On the other hand, the ‘data-drivenness’ of these companies designers describe; the profit-oriented design process; is a form of calculative thinking (Heidegger 1966 [1959]). In essence the dominance of calculative thinking over calculative thinking in the field of technology and research, is resulting in technology becoming more and more profit-oriented, and in this age persuasiveness in the attention economy translates into profit (Simon 1971; Davenport and Beck 2001).

What designers have described as open lines of communication, negotiation or even openness to change, are all representative of these concepts Habermasian communicative rationality over instrumental rationality, or Heideggerian meditative thinking over calculative thinking. Our data suggests that adopting ways to enhance open communication in the corporate environment technologies are developed; is a positive step towards building calmer technologies. And interestingly, adopting mindfulness practices to the work environment seems to be one way of achieving this.

When discussing this finding we actually formed an answer to our last question: How technological evolution on a broader scale plays a role in technology becoming calmer or more persuasive? In sum, our data suggests that building and developing a technology that has some calm qualities is not sufficient enough for overall technology to become calmer; *persuasiveness of technologies is persistent*; and it has strong links with already existing societal structures that value profitability and efficiency highly. Therefore, an intention to develop calmer technologies might result in *a calmer technology* but, it would not necessarily yield a change *in the trend of technology becoming more and more persuasive*. In essence, unsurprisingly for some, the change in technology and society comes hand in hand. Our data suggests that adopting ways to enhance open

communication in the corporate environment technologies are developed; is a positive step towards building calmer technologies. On the other hand, while increasing designer agency and autonomy is a significant factor, designer awareness about unintended effects of technology has also a vital role in technology becoming calmer too.

At this point, we must note that there are limitations in the aspect of the generalizability of our findings. Throughout this study we have only looked into MBMAs, which only makes up a small portion of mobile PT apps. Our sample was purposive, and yielded the contrast between calm and persuasive features. On the other hand, other mobile apps would not bring the same contradictions to the table. Conducting a similar study looking into other forms of PT would probably yield very different and therefore contributory insights. In addition, we have prioritised a theory-based approach in this study; a further study, testing how the calmness and persuasiveness of these apps are experienced by users via qualitative user research would be interesting too. Additionally, our findings suggest that there may be a link between adopting mindfulness in the workplace and open communication, discussion and negotiation culture within technology companies. Since our research has not been designed to discover the dynamics of such a link; a further qualitative study investigating this would be very illuminating.

Throughout this study, we have built a basis for adopting a critical view when evaluating the persuasiveness and calmness of technologies; and argued that such an approach can minimize unintended negative effects of PT if adopted by designers. Most importantly, we have established that societal outcomes we are currently experiencing can be explained by a comprehensive understanding of theory and practice. In essence, the technological overload we are experiencing is not an unpredictable one; from a critical point of view. This study can be used as a guideline for designers that want to educate themselves on contemplating possible design effects on users not just on an individual level but also on a societal level. Lastly, it is also a great introductory work explaining the basics of PT for people with theoretical backgrounds.

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APPENDIX A

A.1 Calm App's Visual Data Gathered via CMDA



Figure A.1.1 Initial Views of the Primary Tabs of Calm: Homepage, Discover, Scroll, Profile



Figure A.1.2 Low-fidelity Representations of the Primary Tabs of Calm: Homepage, Discover, Scroll, Profile



Figure A.1.3 Calm Tab 1.0 Homepage Features: Customizing Background and Soundscape



Figure A.1.4 Calm Tab 1.0 Homepage Features: Customizing Background and Soundscape, An Example of Changes in the Color Palette



Figure A.1.5 Examples of full size Calm 'Scenes'



Figure A.1.6 Examples of Calm 'Scenes' in Lock Screen



Figure A.1.7 An Example of Calm's Content in Series Format



Figure A.1.8 Calm’s Breathe Bubble Feature



Figure A.1.9 Calm’s Breath Bubble Feature Usage Sample



Figure A.1.10 Calm’s Self-Tracking Feature ‘Daily Calm Reflections’



Figure A.1.11 Calm Tab 3.0: Scroll 'All' Tag Samples

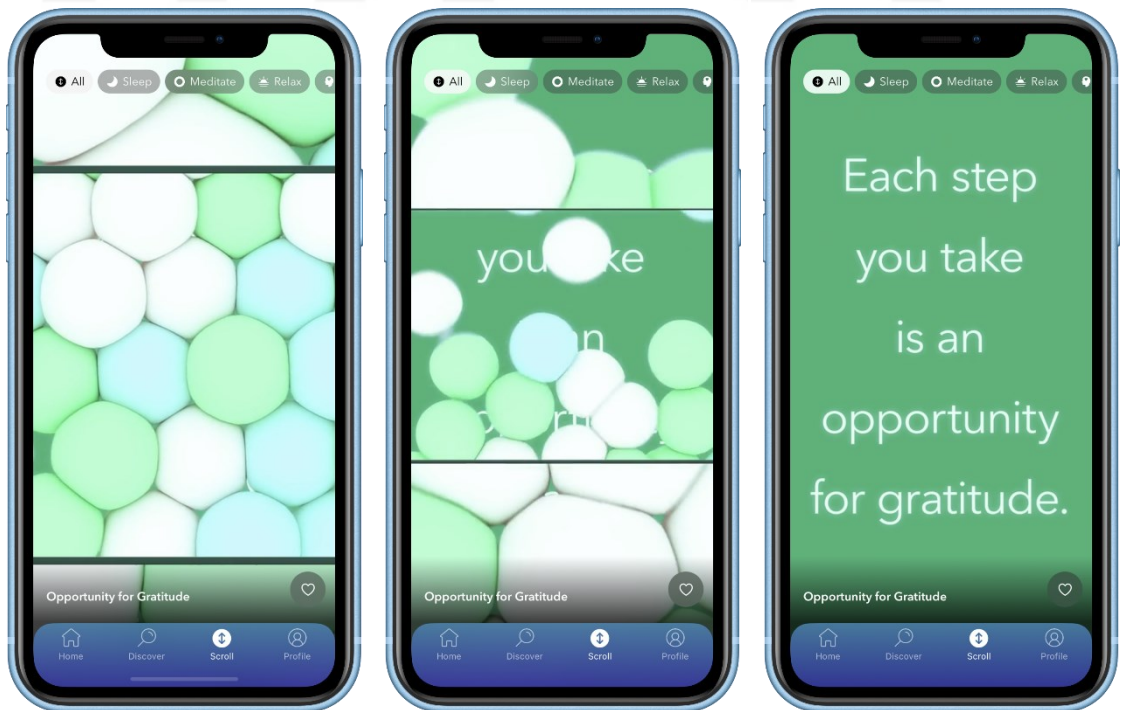


Figure A.1.12 Calm Tab 3.0: Scroll 'All' Tag Sample In Detail

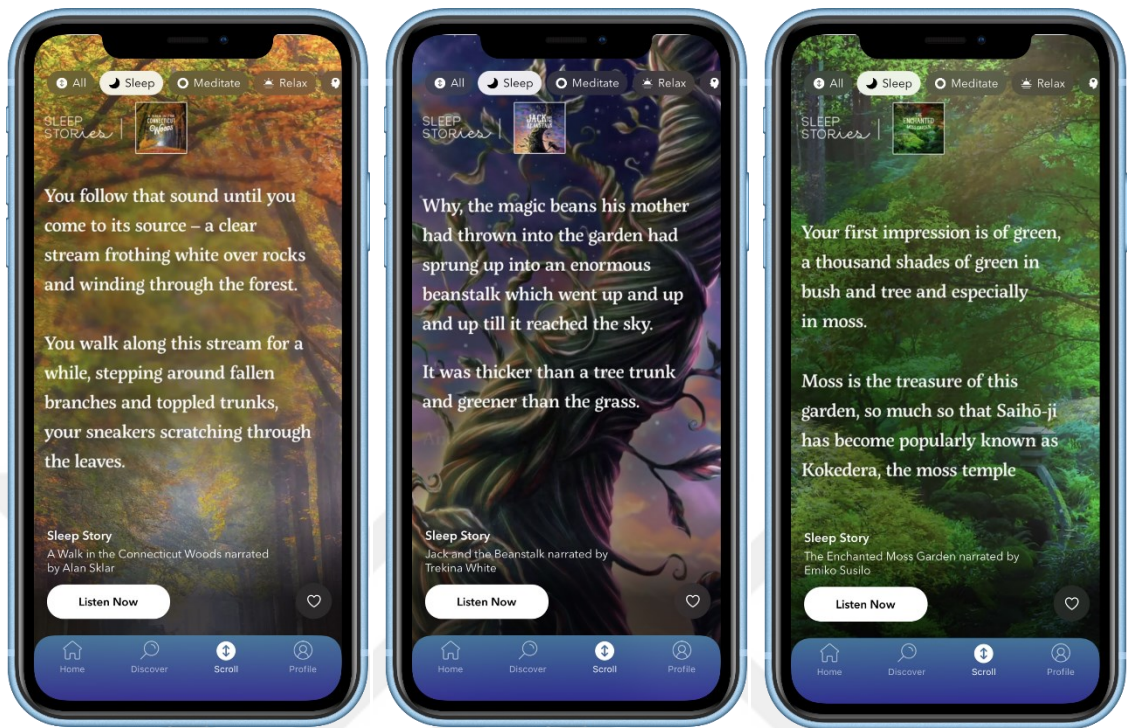


Figure A.1.13 Calm Tab 3.1: Scroll 'Sleep' Tag Samples



Figure A.1.14 Calm Tab 3.1: Scroll 'Sleep' Tag Sample In Detail (Tapping to 'Listen Now' takes user to the sleep story)

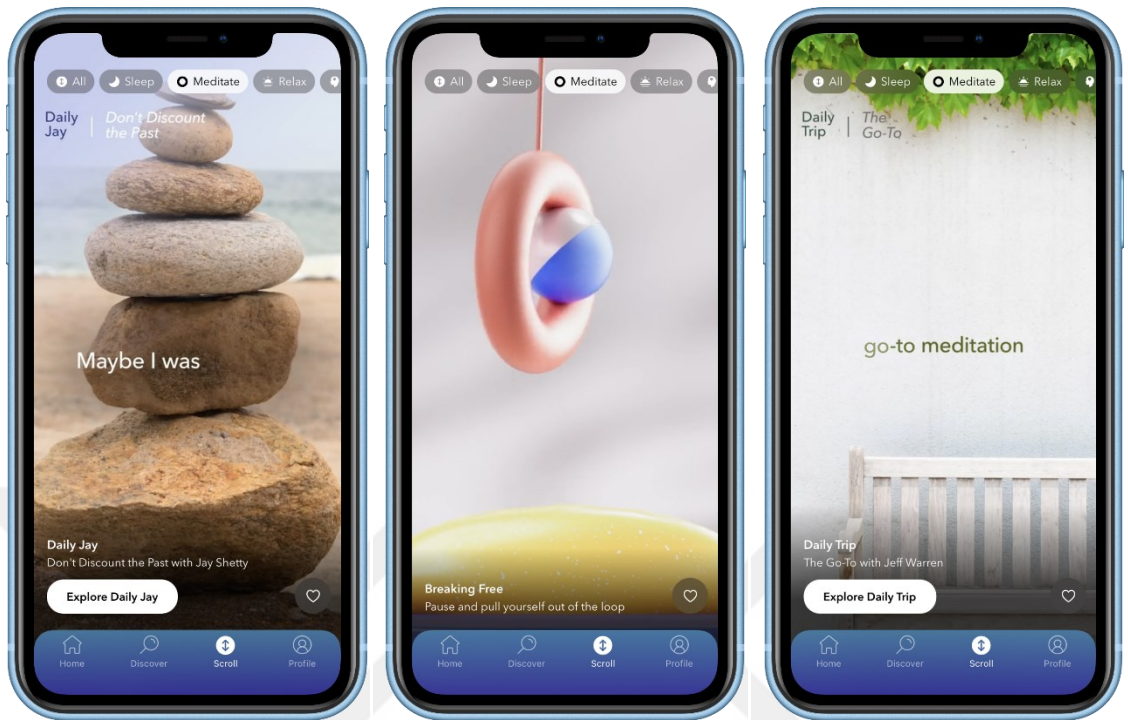


Figure A.1.15 Calm Tab 3.2: Scroll 'Meditate' Tag Sample



Figure A.1.16 Calm Tab 3.2: Scroll 'Meditate' Tag Sample In Detail (Tapping to 'Explore Daily Jay' takes user to the guided meditation)



Figure A.1.17 Calm Tab 3.3: Scroll 'Relax' Tag Samples



Figure A.1.18 Calm Tab 3.3: Scroll 'Relax' Tag Sample In Detail (The content this tag offers is either a moving image or animation, no guided meditation content offered)



Figure A.1.19 Calm Tab 3.4: Scroll 'Wisdom' Tag Samples

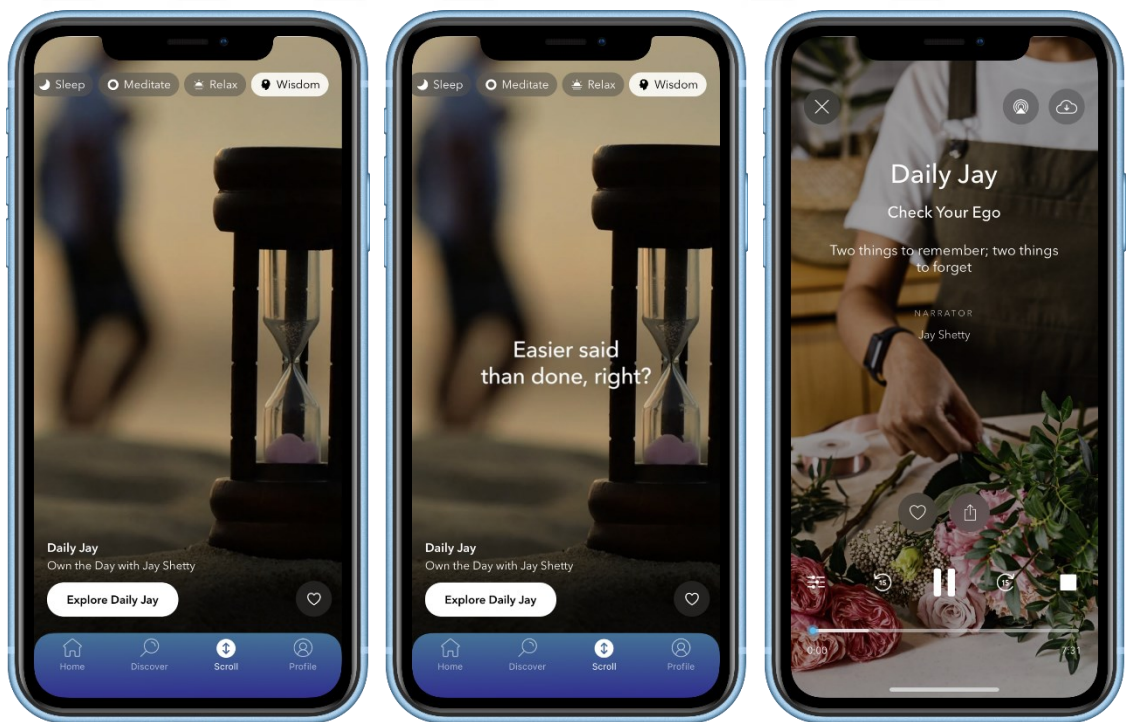


Figure A.1.20 Calm Tab 3.4: Scroll 'Wisdom' Tag Sample In Detail (Tapping to 'Explore Daily Jay' takes user to the guided meditation)

A.2 Meditopia App's Visual Data Gathered via CMDA



Figure A.2.1 Initial Views of the Primary Tabs of Meditopia: Homepage, Discover, Sleep, Music, Profile

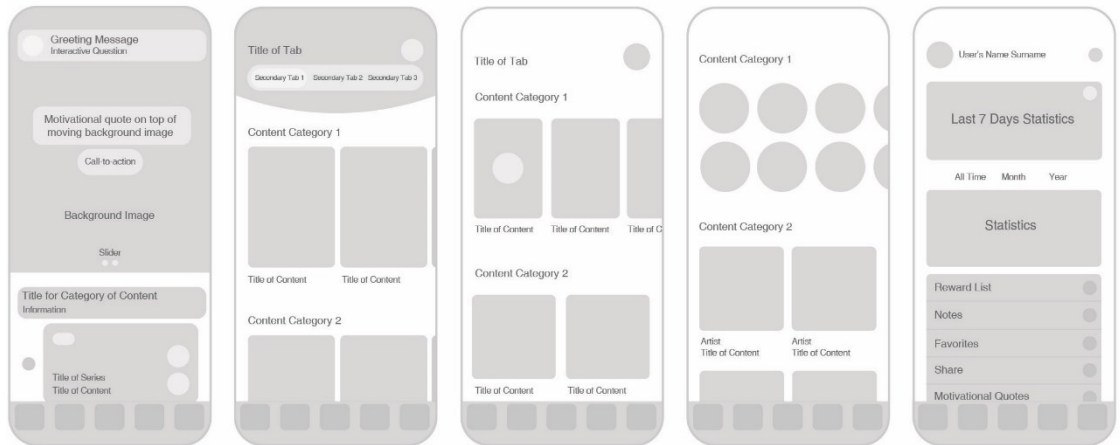


Figure A.2.2 Low-fidelity Representations of the Primary Tabs of Meditopia: Homepage, Discover, Sleep, Music, Profile

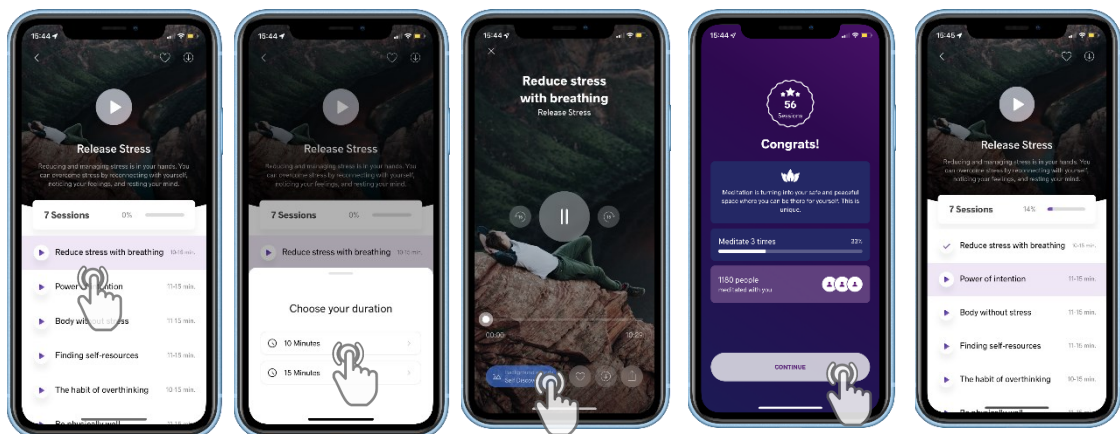


Figure A.2.3 An Example of Meditopia's Content in Series Format

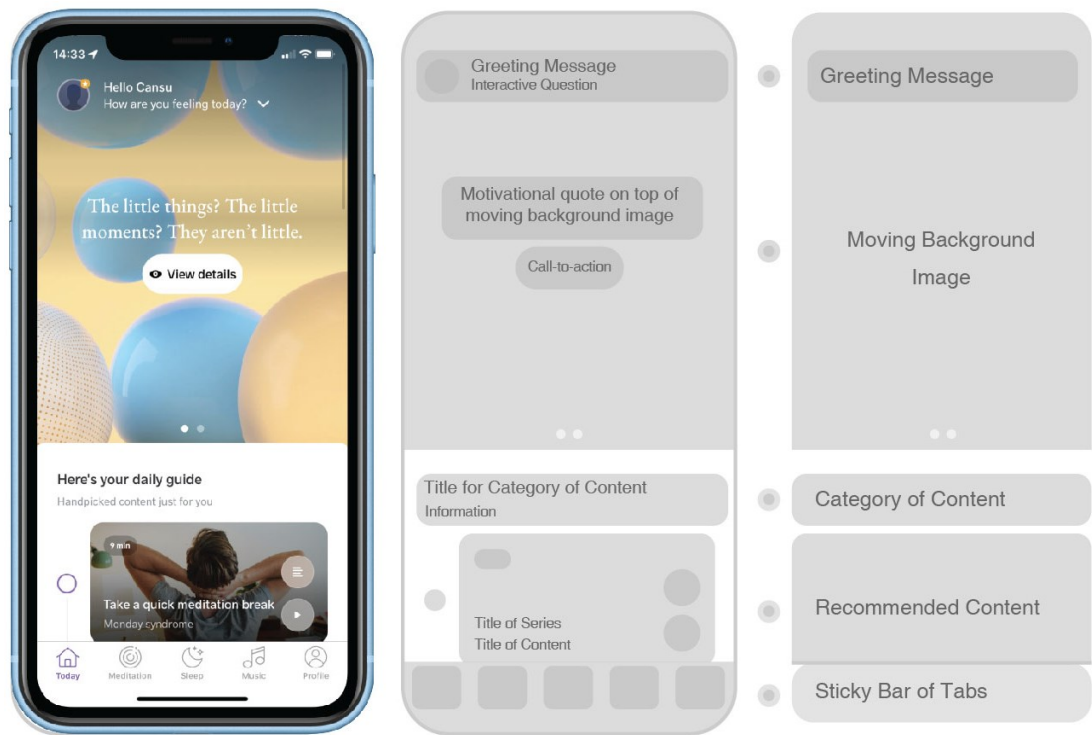


Figure A.2.4 Initial View of the Homepage of Meditopia and Key Features

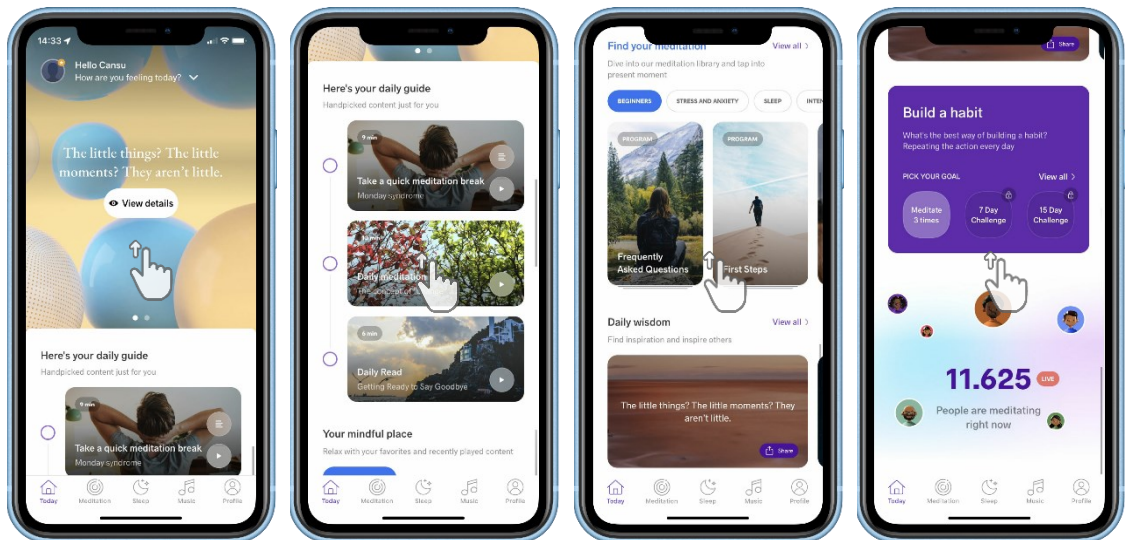


Figure A.2.5 Scrolling Down in Meditopia's Homepage: Samples Showing Recommendations and Other Features

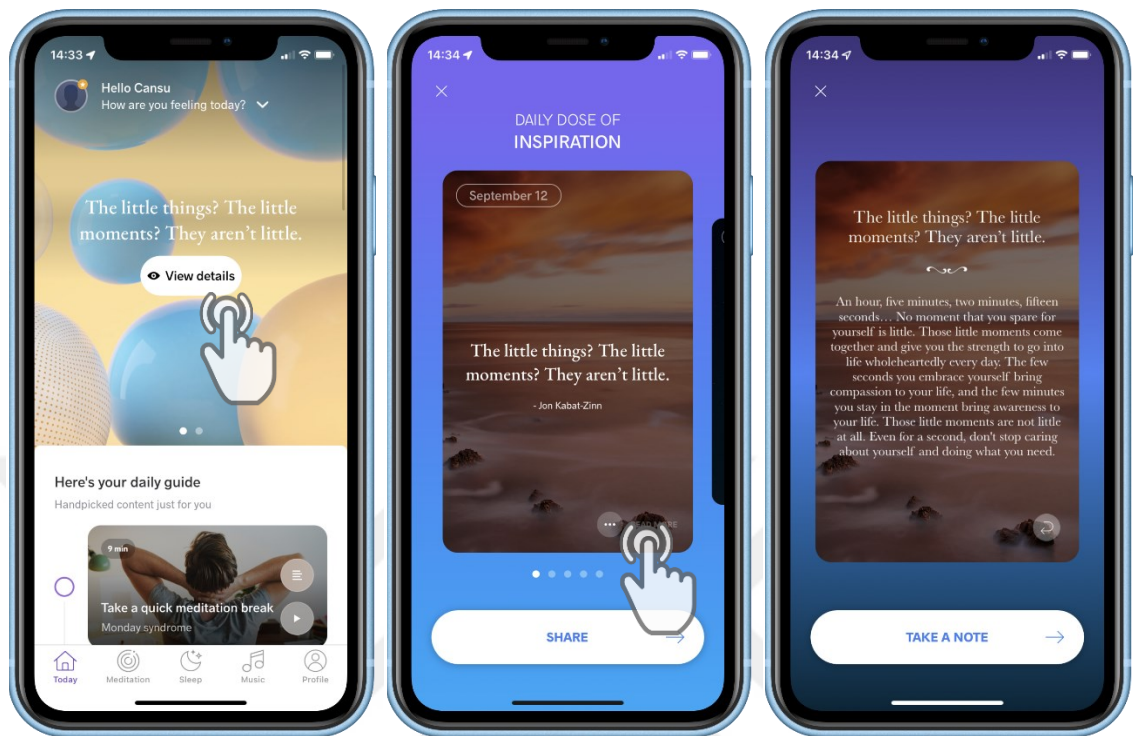


Figure A.2.6 Meditopia’s Salient Features in the Homepage: An example of How Users Can Interact With The Daily Inspirational Quotes Titled ‘Daily Dose of Inspiration’

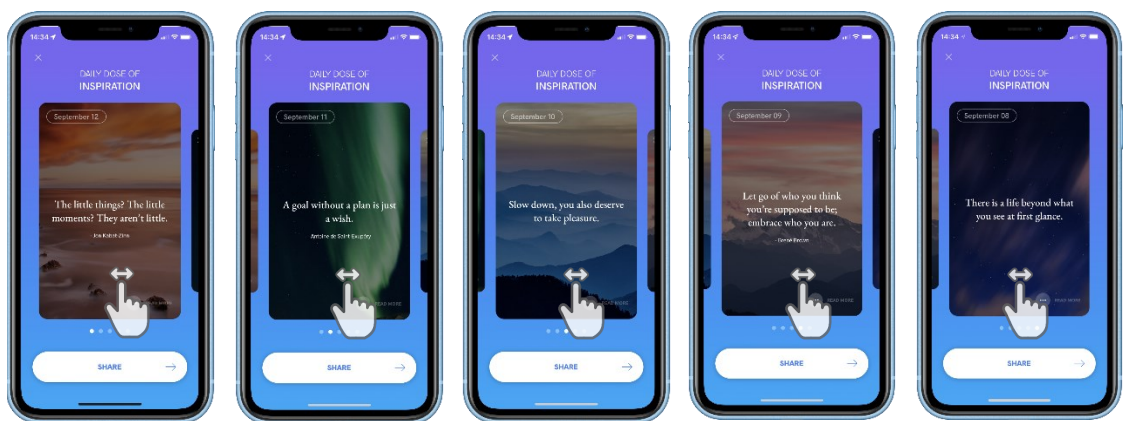


Figure A.2.7 Meditopia’s Salient Features in the Homepage: Viewing Previous Inspirational Quotes

A.3 Headspace App's Visual Data Gathered via CMDA

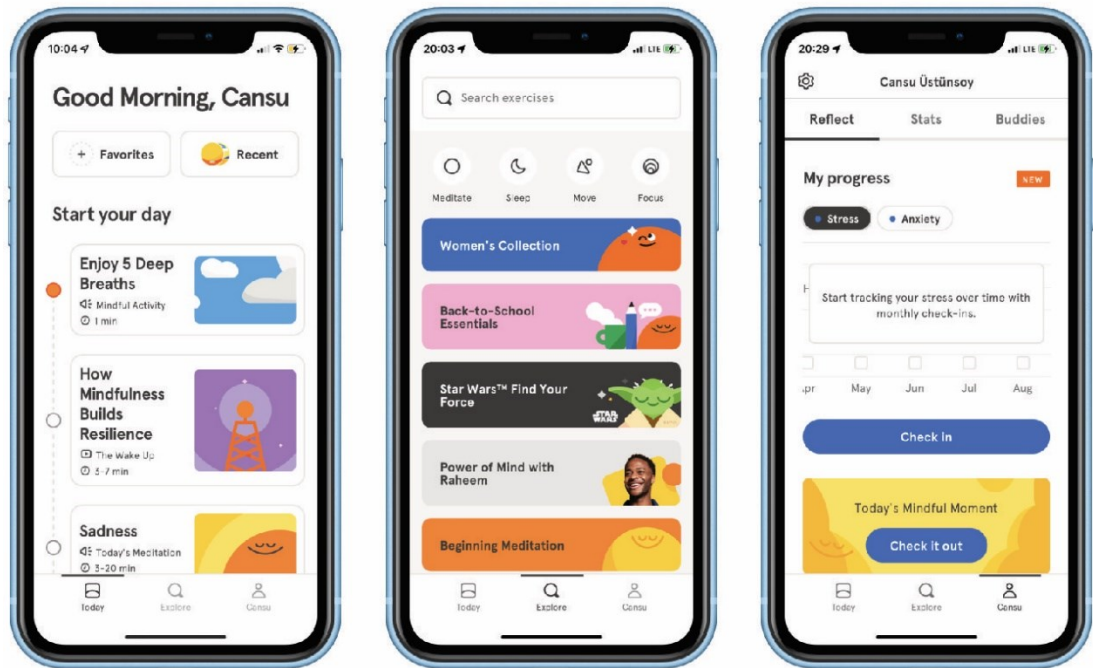


Figure A.3.1 Initial Views of the Primary Tabs of Headspace: Homepage, Explore, Profile

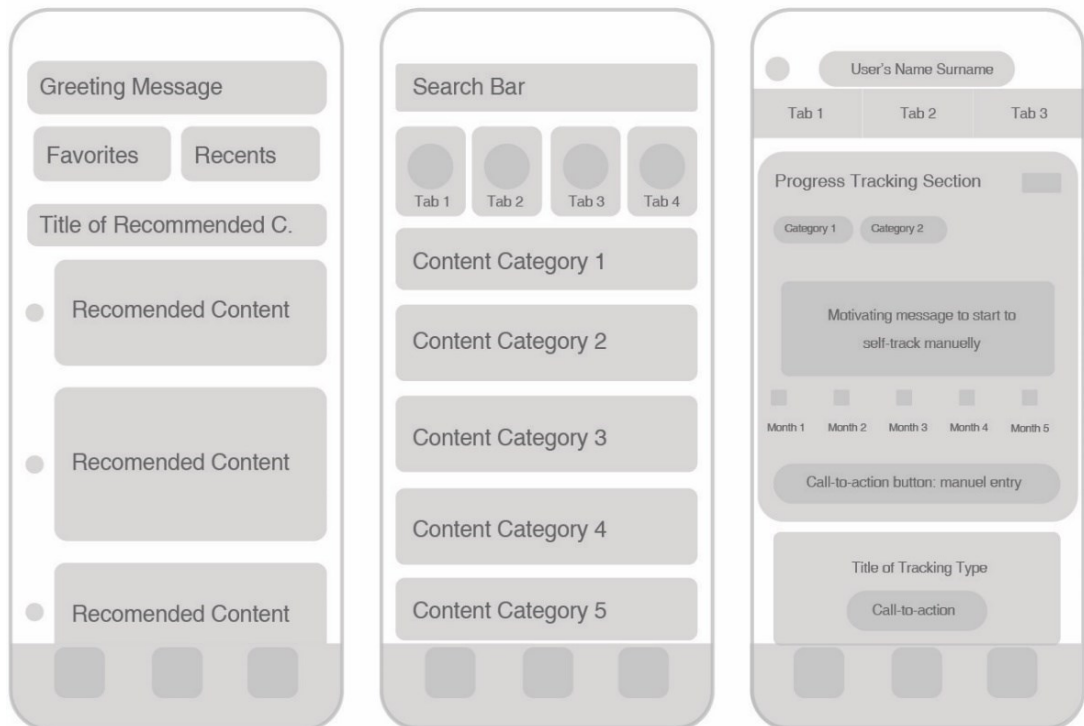


Figure A.3.2 Low-fidelity Representations of the Primary Tabs of Headspace: Homepage, Explore, Profile

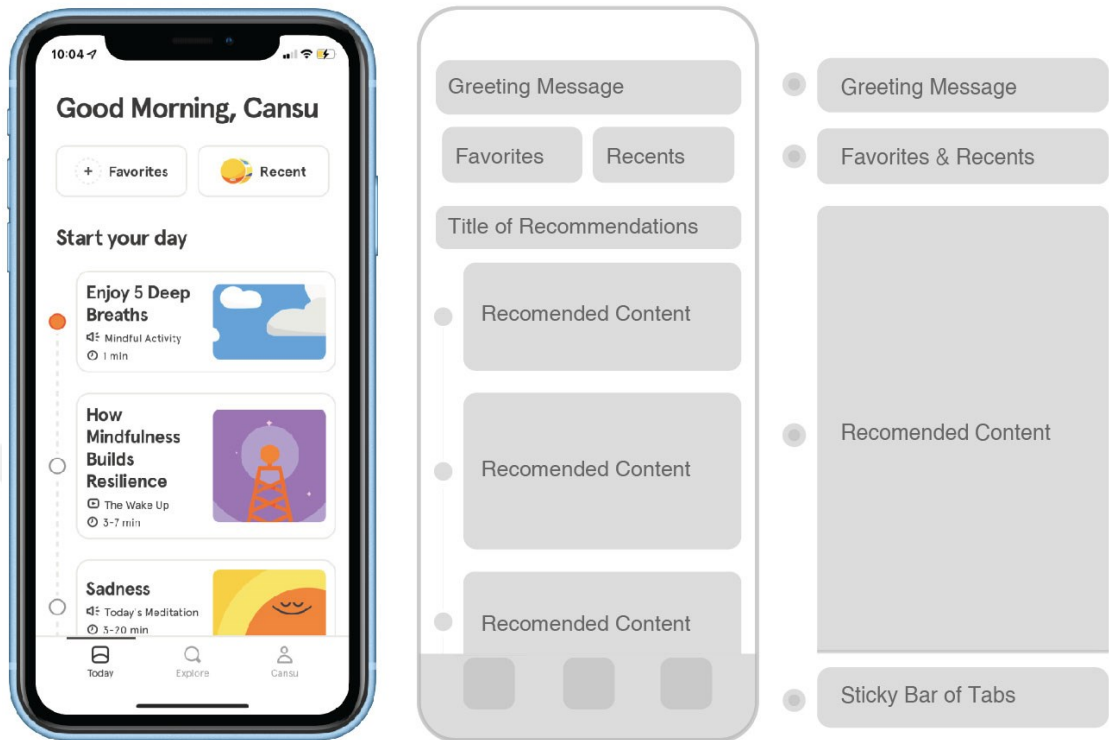


Figure A.3.3 Initial View of the Homepage of Headspace and Key Features



Figure A.3.4 An Example of Headspace's Key Features in the Homepage: Recommended Content in Check-List Format

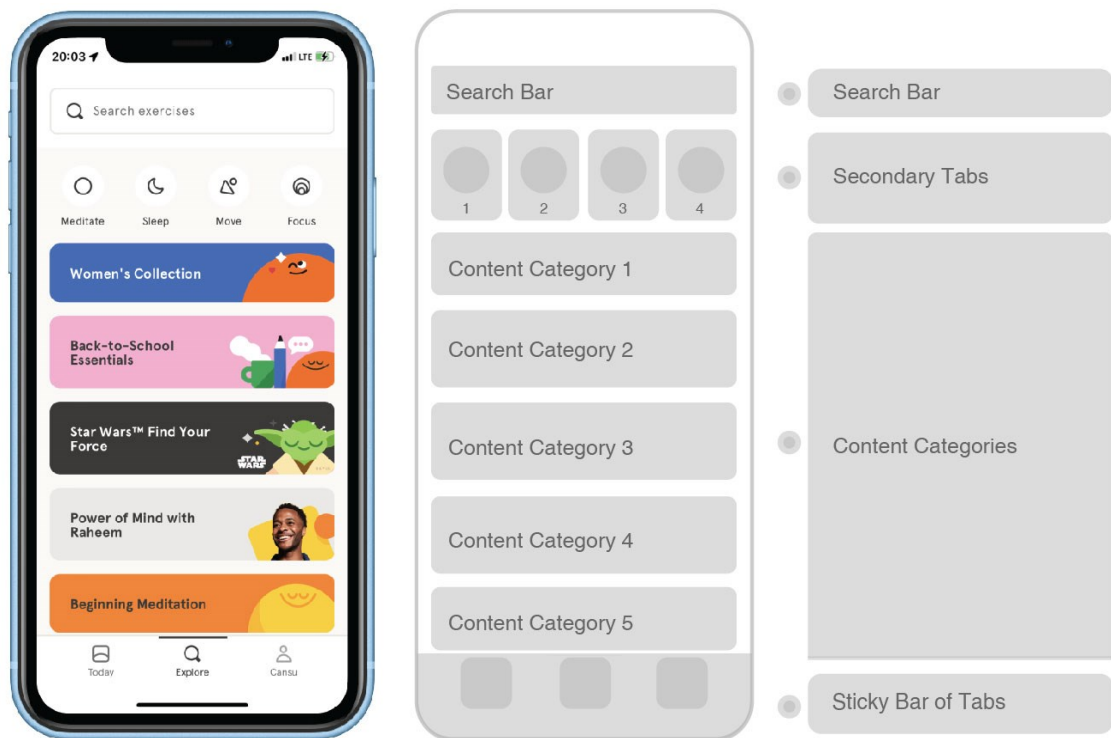


Figure A.3.5 Initial View of the Explore Tab of Headspace and Key Features



Figure A.3.6 An Example of Headspace's Content in Series Format

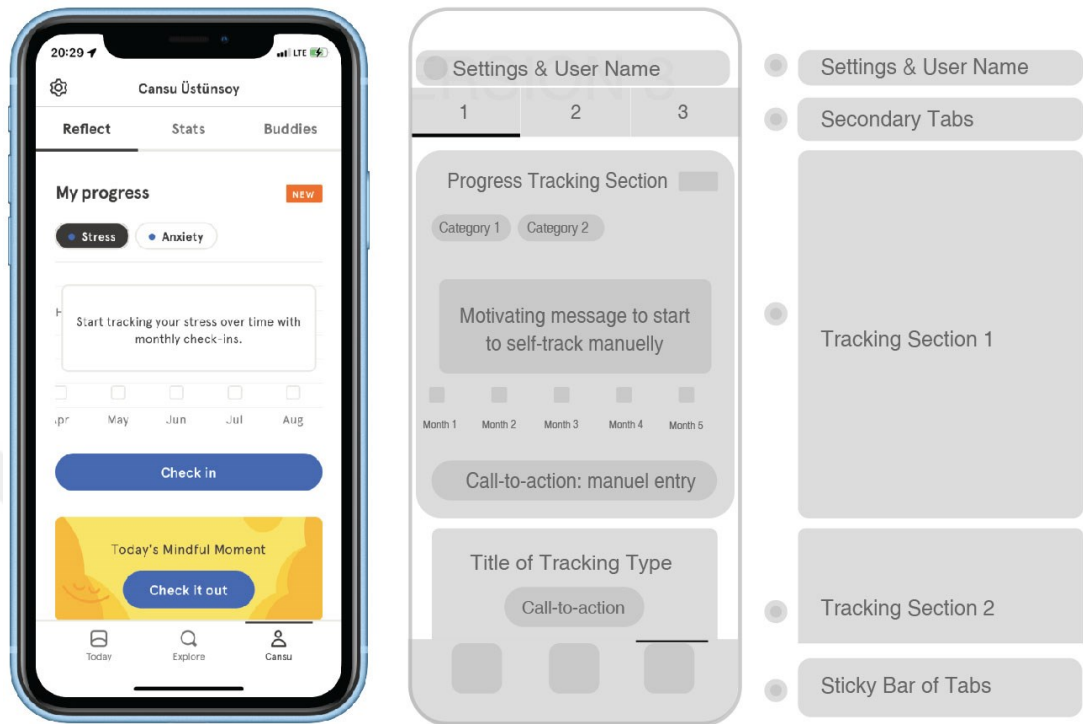


Figure A.3.7 Initial View of the Profile Tab of Headspace and Key Features

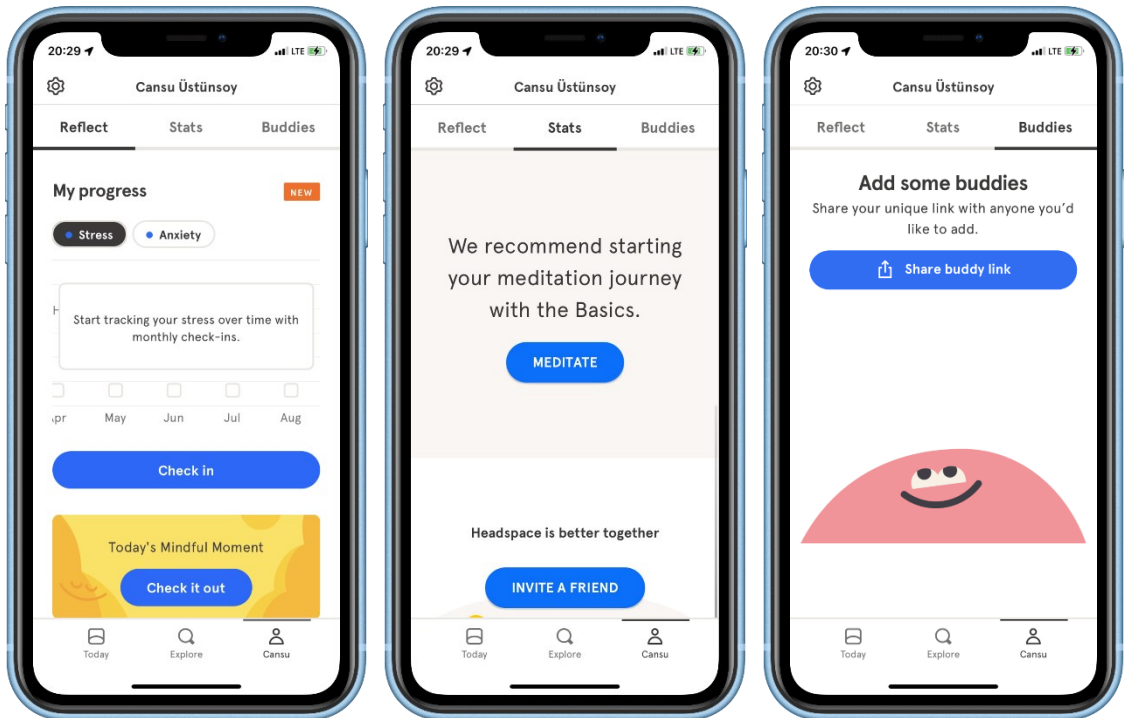


Figure A.3.8 Secondary tabs accessible in the Profile Tab of Headspace: Reflect, Stats, Buddies

APPENDIX B

B.1 Intended Interview Questions for MBMA Designers

1. Can you please give us background about your professional and educational experience; what is your role as a designer in this mobile application?
2. Can you tell us about the design process? (What is the design problem that this mobile app solves? Which brands did you look into in the marketing research? Who are your competitors, how is this mobile app positioned in regards to the competitors? What is the distinctive thing about this app compared to competitor apps?)
3. Have you ever heard of the term persuasive technologies or persuasive design? (A brief explanation of PT if necessary) What is your outlook on Persuasive Technology?
4. Nowadays using persuasive design techniques is trending especially in mobile app designs. Which of these do you use in this application, can you give examples?
5. When do you think changing behaviors/attitudes of users can be considered ethical? What are the specific scenarios that this app uses these techniques?
6. Do you have any observations about how these design elements create positive or negative changes in users? What are your observations?
7. How is user data used in revisions of the design?
8. Is there an ethical principle or guide you follow when designing?
9. Are there any differences of opinion in this issue in the design team? In what aspects?
10. What can be or should be done? Are there any apps that come to your mind that are user friendly and also persuasive? Are there any brands/companies you take as an example?

B.2 Intended Interview Questions for MBMA Designers (in Turkish)

1. Eğitiminiz ve profesyonel deneyimlerinizden bahsedebilir misiniz? Bu uygulamada tasarımcı olarak rolünüz nedir?
2. Tasarım sürecinden biraz bahsedebilir misiniz? (Uygulamanın çözüm bulmayı amaçladığınız ana problem nedir? Pazar araştırması süreci nasıl işliyor? Bu pazarda rakipleriniz kimler? Rakiplere karşı markanızı nasıl konumlandırıdınız? Sizi ayıran şey nedir?)
3. Daha önce ikna teknolojileri, ikna tasarımı “persuasive design” terimini duymuş muydunuz? (Gerekli ise kısa bir açıklama) İkna Teknolojileri hakkında düşünceleriniz neler?
4. Günümüzde mobil uygulamalar kullanıcıların davranışlarını biçimlendirmek için ikna teknolojileri gibi tasarım teknikleri kullanıyor. Uygulamada bu ve benzer teknikleri nasıl kullandınız?
5. Sizce kullanıcının eylemlerini/düşüncelerini biçimlendirme hangi durumlarda etik olabilir? Geliştirmekte görev aldığınız bu uygulamada bu tekniğin kullanıldığı spesifik senaryolar nelerdir?
6. Bu tekniklerin kullanıcılarda olumlu/olumsuz yarattığı değişimlerden bahsedebilir misiniz? Gözlemleriniz neler?
7. Uygulamadan toplanan kullanıcı datası uygulamanın iyileştirilmesinde veya revizyonlarında nasıl kullanılıyor?
8. Tasarım yaparken takip ettiğiniz bir etik prensip veya kılavuz var mı?
9. Bu konuda tasarım grubu arasında fikir ayrılığı oluyor mu? Nasıl konularda oluyor?
10. Neler yapılmalı? İkna edici ve kullanıcı dostu uygulamalar; dünyadan takip ettiğiniz örnekler var mı?

B.3 Intended Interview Questions for Mindfulness Trainers

1. Can you please give us background about your professional and educational experience? When did you become professionally interested in mindfulness and meditation? What kind of work do you carry out in this field?
2. Can you talk a little bit about your working process? How does your typical working day go?
3. How has digitalization affected the work in your field? Do you have any examples you want to share from your own experiences and the experiences of your colleagues working in the same industry?
4. What do you think about mindfulness technologies? How do you find meditation exercises to be done through technology, for example mobile applications?
5. What do you think are the advantages and disadvantages of using technology for mindfulness?
6. As a professional working in this field, have you ever used or regularly used mobile applications? Why?
7. If so, what do you like and dislike about mindfulness applications?
8. With the increase in the number of such technologies, the access of a wide audience to mindfulness and meditation practices has increased. What do you think about this?
9. Have you heard of the term persuasive technologies before? (In case the interviewee has not heard the term before, it can be explained in a few sentences so that the interview can be productive.) What are your thoughts on the use of persuasive technologies in meditation practices? How do you think such techniques affect the experience of mindfulness training?
10. What should be done in this field in terms of technology? What are the problems or observations that technology brings to table? How can it be improved? What are the advantages and opportunities?

B.4 Intended Interview Questions for Mindfulness Trainers (In Turkish)

1. Profesyonel deneyimleriniz ve eğitiminizden bahsedebilir misiniz? Öz farkındalık ve meditasyon ile profesyonel olarak ilgilenmeye ne zaman başladınız? Bu alanda nasıl bir çalışma yürütüyorsunuz?
2. Çalışma sürecinizden biraz bahsedebilir misiniz? Tipik bir çalışma gününüz nasıl geçiyor?
3. Dijitalleşme, alanınızdaki çalışmalarını nasıl etkiledi? Kendi deneyimlerinizden ve aynı sektörde çalışan iş arkadaşlarınızın deneyimlerinden paylaşmak istediğiniz örnekler var mı?
4. Meditasyon teknolojileri hakkında neler düşünüyorsunuz? Meditasyon egzersizlerinin teknoloji aracılığıyla, örneğin mobil uygulamalarla yapılmasını nasıl buluyorsunuz?
5. Sizce meditasyon için teknolojiyi kullanmanın avantajları ve dezavantajları neler?
6. Siz, bu alanda çalışan bir profesyonel olarak, bu tip uygulamaları hiç kullandınız mı veya düzenli kullanıyor musunuz? Neden?
7. Eğer kullandıysanız, meditasyon uygulamalarının beğendiğiniz ve beğenmediğiniz yanları neler?
8. Mobil uygulama marketlerinde bu tip uygulamaların artması ile öz farkındalık ve meditasyon çalışmalarına geniş bir kitlenin erişim imkanı arttı. Bu konuda ne düşünüyorsunuz?
9. Daha önce, ikna teknolojileri terimini duymuş muydunuz? (Daha önce duyulmamış olması durumunda görüşmenin verimli olabilmesi için birkaç cümle ile terim açıklanacaktır.) İkna teknolojilerinin meditasyon uygulamalarında kullanılması hakkında düşünceleriniz neler? Sizce bu tip teknikler öz farkındalık deneyimini nasıl etkiler?
10. Bu alanda neler yapılmalı? Teknolojinin bu alanda yarattığı problemler neler? Sizce ne yönde geliştirilebilir? Sizce bu alanda teknolojinin avantajları ve fırsatlar neler?

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