

Looking through the window: emotional experiences of Instagram users in isolation

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ABSTRACT

The impact of COVID-19 pandemic on the health and wellbeing of people around the world has become an important research topic. Even for non-essential workers, social isolation has drastically changed people's lives and habits. Considering that our daily lives and habits occur largely through the intermediation of products and services, social isolation may have drastically changed people's relationship with the products and services surrounding them. Thus, social media apps like Instagram have become crucial sources of information, social connection, and entertainment for the socially isolated. This article investigates the role of social media applications in people's daily lives in isolation, based on the analysis of their emotional experiences. To this end, an exploratory study was carried out with 13 users in social isolation, based on diaries in which they reported the experiences they had through the Instagram platform from June 15th to June 29th. Results showed that Instagram had brought predominantly positive experiences to its users; however, negative emotions related to an excess of information and content consumption were also relevant. The results and conclusions of this work can be considered in future investigations about parameters for developing digital products that aim to reduce negative experiences and anxiety.

Keywords: Covid-19; Emotional Experience; Social Media; Emotional Design; Diary Study.

INTRODUCTION

The presence of social media apps in our daily lives has grown expressively throughout the last decade. As products, social media apps like Instagram, Facebook, and Twitter have the premise of facilitating and enhancing social connections, personal expression, and entertainment just with a few taps. According to the mobile consulting firm App Annie, in 2019, people have spent nearly half of their mobile use time on social and messaging apps (App Annie, 2020). However, the negative aspects of the heavy use of social media have been widely discussed in books (Lanier, 2018; Sampson et al., 2018; Tettegah, 2016), media articles (Harris, 2016), and research works (de Koning, 2019), such as psychological dependency, undermining of face-to-face interactions, and other potentially harmful consequences. Other works also discuss the positive side of consciously using these products to connect with friends and family, express yourself in new ways (Wood et al., 2016), enhance social connections (Clark et al., 2018) and have access to content people would not normally find in other sources. In the context of social isolation, social media apps have gained special importance as a product in people's lives. They have become one of the only

ways of staying in touch with friends, family, and getting information about the world around us. Like any other product, the intensive interaction with these apps has the potential of influencing socially isolated individuals' emotions and wellbeing, which are already being heavily influenced by the ongoing of the COVID-19 pandemic worldwide.

The connections between emotion, experience, and wellbeing in human-products have been actively discussed over the past years. The experience conveyed by any product is a complex structure in which cognitive processes, actions, and emotions come into play, with the emotional aspects having a crucial role (Hassenzahl, 2011). After the episode of interacting with any product or service, people tend to evaluate the experience as “good” or “bad”, depending on their goals, concerns, and personal beliefs (McCarthy & Wright, 2004; Hassenzahl et al., 2013). It is important to note that the emotional aspects, product meaning, and aesthetic elements, are the main components of an experience (Hekkert, 2006; Desmet & Hekkert, 2007). The convergence of emotions, aesthetics, and meaning is connected to the potential that products have of negatively or positively influencing peoples' happiness (Hassenzahl et al., 2013). In that sense, through its emotional experience, any product can intentionally or not influence the wellbeing of its users in various intensities.

At the present moment, most people around the world have had their daily lives, concerns, emotions, and wellbeing heavily affected by the global pandemic. For individuals in isolation, the internet and social media apps have become their main source of information, social connection, and entertainment. Since this type of product has assumed such a crucial role in the present moment, the following study aimed to investigate the role of social media apps in the pandemic context, focusing on the Instagram platform. The Instagram app was selected because of its diverse functions, serving as a social, business, and entertainment platform. Through the exploration of this problem, we aim to raise hypotheses on what are the true roles of social media apps in crises, and how can we design products that actively promote its users' wellbeing and happiness in this context.

1. ADRESSING EMOTIONS IN HUMAN-PRODUCT INTERACTION

1.1. Emotions in Experience

Our interaction with products is not made of prescriptive and static communications. After interacting with any product or service, users tend to recollect a “story” of what happened and how to assign positive or negative aspects to it (McCarthy & Wright, 2004; Hassenzahl et al., 2013). Kahnemann (1999) defines “experience” as a thread of emotions, thoughts, and actions, separated from the immediate moment that they have occurred. The emotions elicited over the course of interaction are one of the main aspects of how a user evaluates their experience with a product. Desmet and Hekkert (2007) and Hekkert (2006) discussed that specific layer of experience under the term of product experience. The Product Experience can be understood as the overall affective aspects that arise from interaction between people and products. That includes the sensorial levels (aesthetic experience), the meaning (experience of meaning) and the emotions and feelings (emotional experience). It is important to note that all three layers work together to convey an experience, as it can be observed in figure 1 (Desmet & Hekkert, 2007).

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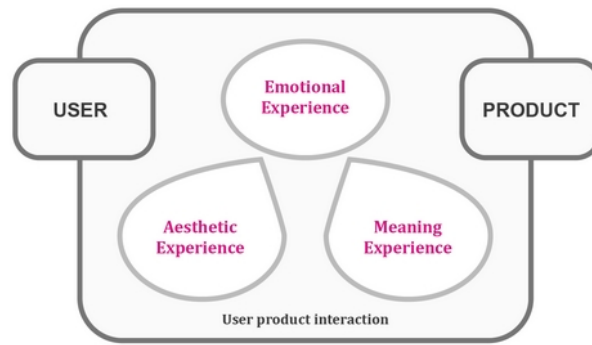


Figure 1. Framework of Product Experience (Desmet and Hekkert, 2007).

Regarding the emotional experience, emotions in interactions are consequences of how people appraise aspects of the product, defining them as positive or negative for their concerns and wellbeing. A demonstration of the Basic Model of Product Emotions can be seen in figure 2 (Desmet, 2003).

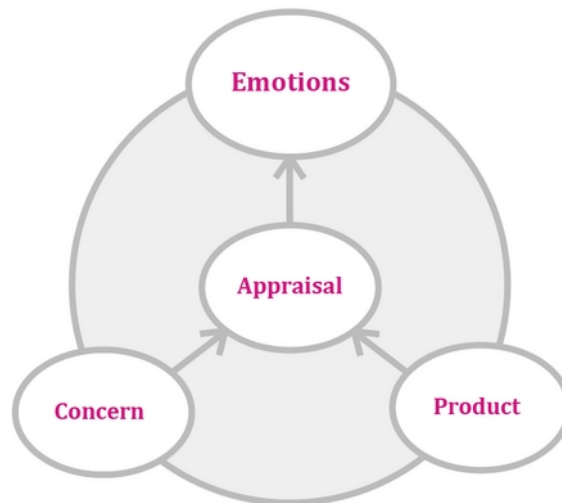


Figure 2. Basic Model of Product Emotions (Desmet, 2003).

In the context of the emotional experience, an appraisal is what mediates products and emotions. That mediation is the main reason why people can have different emotional reactions after interacting with the same product (Desmet, 2003). Understanding of the components of an emotional experience is crucial to the present work, given its multilayered nature. Social media apps are complex products where multiple concerns and motivations coexist. Because of that matter, we understood that the presented models would provide an adequate exploratory analysis of such an intricate subject.

1.2. Classifying product relevant emotions

Drawing from previous research on cognitive emotion models and appraisals, Desmet (2003) proposes a multilayered model of product-specific emotions. The model establishes a direct link between types of appraisals and types of emotions. In that sense, the model is considered multilayered because it addresses the social, aesthetic, and functional aspects of interaction with products. Based on five appraisal types (novelty, motive/compliance, intrinsic pleasantness, legitimacy, and challenge & promise), five types of emotions can be elicited: Surprise, Instrumental, Aesthetic, Social, and Interest emotions. A representation of the model can be seen in figure 3 (Desmet, 2003).

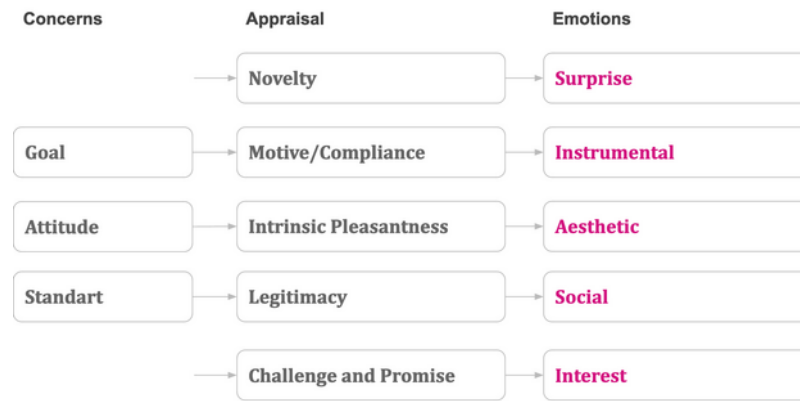


Figure 3. Model of Product Emotions (Desmet, 2003).

Surprise emotions are elicited when some aspect of the product or experience is considered unexpected by the user. On the other hand, Instrumental emotions are related to our goals and expectations while using a product. The Aesthetic emotions are elicited by aspects of a product that affect our senses and generates an attitude of "liking" or "disliking" a product. Social emotions are related to our expectations of how "the world should be" or how "others should behave". Interest emotions are linked to stimulations (or lack thereof), like challenges or promises that the product evokes. For example, if a user opens Instagram intending to find new meat-free recipes (their goal, a type of concern), they might be delighted to find what exactly they had in mind (which then would be an Instrumental emotion). They might even feel happy and validated because other people share their concerns about meat consumption (which would be a Social emotion). In that sense, the model addresses not only the emotion itself or its affective aspect, but also where does it come from in the experience of using a product.

In light of the diversity of functions that Instagram offers, and the multilayered nature of an emotional experience, the model proposed by Desmet (2003) was considered ideal for the scope of the present study. It is essential to note that this model was designed with physical objects in mind. For that reason, we have considered not only the app itself but also the content it delivers to its users. Since content sources at Instagram are curated and prioritized by the app itself in different ways, we considered that the final result could also be studied as a product-specific aspect.

2.METHODOLOGY

To analyze the participants' emotions and concerns, we have used the structured Diary Studies method, paired with a previous survey. The Diary Study is an option for collecting data in situ, providing a holistic, self-reported view of experience (Baxter et al., 2015). The chosen method is also versatile enough to be done remotely, which was crucial in the isolation context. The method consisted of calls on the Instagram platform itself, with diary entries crafted as Instagram Stories, where participants could interact without leaving the application. This format makes it less likely that users delay or skip submissions, and is considered ideal for real-time collections (Baxter et al., 2015). Both the survey and Diary entries were designed to collect a closed set of variables: affective indicators, emotions, and concerns that arise from the experience of using Instagram, and how their daily Instagram use has changed during the isolation period.

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2.1. Method structure and procedures

The previous survey sent to all participants inquired three questions: Question 1 asked, "For how long have you been practicing voluntary social distancing, going out only for essential activities (buying food, drugstore, emergencies)?" Question 2 asked users to rate how much their Instagram use was during isolation by an increased or decreased scale of -2 (Sharp Decrease) to +2 (Sharp Increase). The last question (Question 3) inquired what were their main motivations while using Instagram in their social isolation period. Participants could select up to three (3) options out of nine (9). The results of the previous survey would provide some important context for analyzing the results of the following step.

Regarding the Diary study entries, the first question (Q1) inquired, "How did you feel using Instagram today? You can link specific pictures or posts you may want to share. If you did not use this feature today, you can skip the entry." Q1 had subsections for each of the four main content sources at Instagram: Feed, Stories, Live Transmissions, and Explore tab. The second question (Q2) inquired participants their main motivations for publishing content today (provided if they have published any content). The purpose of these questions was to overview the emotions, goals, and concerns that aroused from the experience of using Instagram and the affective aspects of their experience (positivity or negativity). The Diary entries for these questions, formatted as Instagram Stories, can be observed in figure 4.

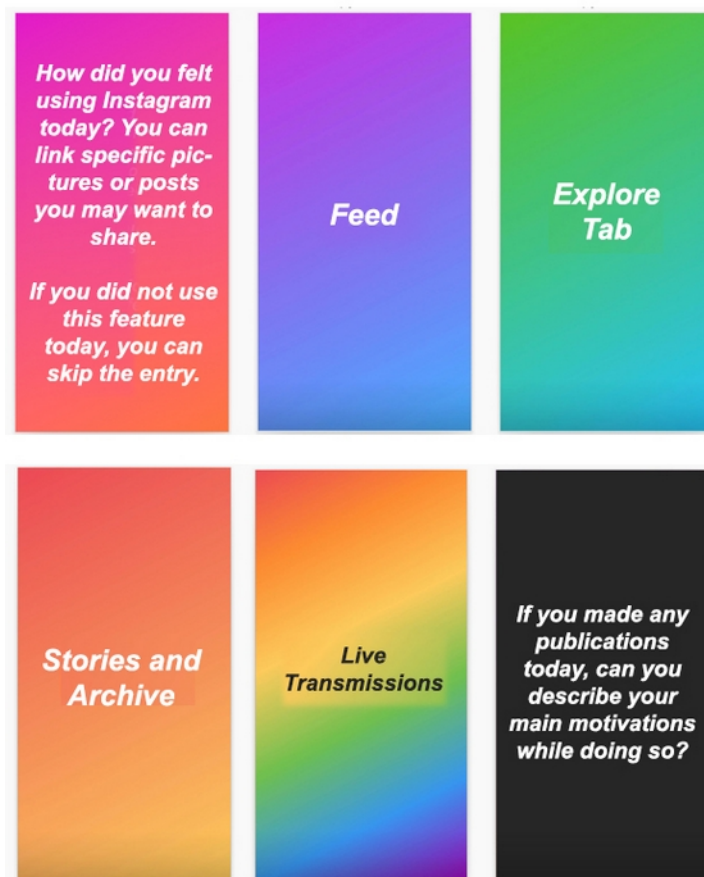


Figure 4. Diary entries formatted as Instagram Stories.

The third and fourth questions inquired: "Report using this scale how Happy (Q3)/Aroused (Q4) did you feel while using Instagram today". These questions would be used to collect the general affective aspect of their experiences, composed both by pleasure and arousal. These questions were answered using an app native slider, supported by a 5-level scale for Pleasure and Arousal, with a corresponding emoji for each level.

The Pleasure and Arousal sliders were inspired by the work of Bettella and Verschure (2016) that creates the “Affective Slider”, which is a digital and self-reported tool to communicate affective aspects and emotions (Bettella & Verschure, 2016). Given the format of our study, there were considerable limitations for the implementation of the Affective Slider, which is more suitable for webpages. One of the goals in designing the study was that the participant did not have to leave the Instagram app to answer the entries. Because of that matter, we have decided to construct a slider and scale using Instagram Stories’ native features, while keeping Pleasure and Arousal as components of affective aspects.

The five emoji were selected based on answers provided by the participants before the first entry was sent, via a preliminary survey about emojis and meaning. We have asked the participants to select the three (3) emoji that best communicated each of the following emotions: Pleasure; Displeasure; Arousal and Disinterest. We have decided to adapt “Pleased” to “Feliz” (Portuguese for “Happy”) in the Pleasure slider because we considered that other translations to Portuguese would not convey the same message in the desired intensity as “Feliz” would. For the same reasons, we have decided to use “Empolgado” (Portuguese for “Excited”) for the Arousal slider in Portuguese.

In the following question, participants were asked to rate on a scale of 1 to 5 how each emoji represented these emotions for them. The results of both sections were combined using the average of each emoji’s scores, resulting in a 1 to 5 level emoji scale for Pleasure and Arousal. The results were used to create the Diary entries for these questions, formatted as Instagram Stories with sliders, as it can be observed in figure 5.

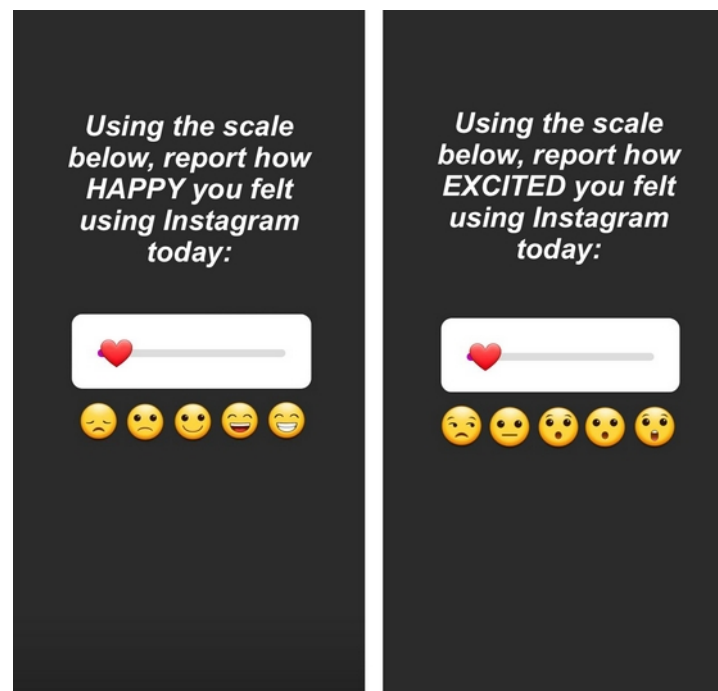


Figure 5. Diary entries for Pleasure and Arousal as Instagram Stories with native sliders (translated for English).

We have selected a convenience sample of fifteen (15) individuals for the Diary Study. The participants needed to fulfill two criteria: (1) using the Instagram app at least two times a week; (2) having been in social isolation due to the COVID-19 outbreak for at least a month, before their first day of participation. The Diary entries were sent via Instagram Direct for each participant, in the evening, for two weeks. Two (2) participants had dropped off from their participation before the first entry was concluded. The participation rates ranged from

3 days (21,4%) to all 14 days (100%) by the end of the study, where any number of answered questions in that day was considered a valid Diary entry. The final qualitative and quantitative results allowed us to overview which types of emotions and concerns were most significant for users of the Instagram app during their social isolation times, as well as a look at their Pleasure and Arousal tendencies while using the platform.

2.2. Result Analysis

The text entries were analyzed by classifying reported emotions in the Model of Product Emotions (Desmet, 2003). We have considered associated reasons (appraisals and concerns) to infer what type of emotion was being reported. We have also classified emotions in positive and negative ones, considering the context in that they were expressed, and the reasons presented by the participant.

We have converted the slider answers of participants to numbers from 1 to 5 using an image editing software. Using the resulting numbers, we have calculated the median for "Pleasure" and "Arousal" for each participant. Subsequently, we compared the median values to the tracked emotions and purposes.

At the end of the study, we had a pool of 210 emotions expressed across 269 different text entries, 106 Pleasure reports, and 104 Arousal reports. These results are analyzed and discussed in the next section.

3.RESULTS

Before considering the Diary Study outcomes, we have overviewed the Preliminary Survey results, which would give us a first look at the participants' goals and habits of using Instagram in their isolation period. Most of the participants (66,7%) reported that one of their main goals when using the Instagram app was to "get a distraction". The following goals were Entertainment (60%), Communication with family and friends (53,3%), Self-expression (46,6%), and Information in general (40%). The least reported goals were Developing new skills (13,3%), Information spreading/Seeking information about the pandemic (6,7%) and Spreading information about the pandemic (0%).

To start examining the overall emotional experience of participants with Instagram, we have classified all reported emotions into ten groups, where each emotion type (Surprise, Instrumental, Aesthetic, Social, and Interest) had "Positive" and "Negative" subgroups. The distribution of those groups can be seen below in figure 6 and figure 7.

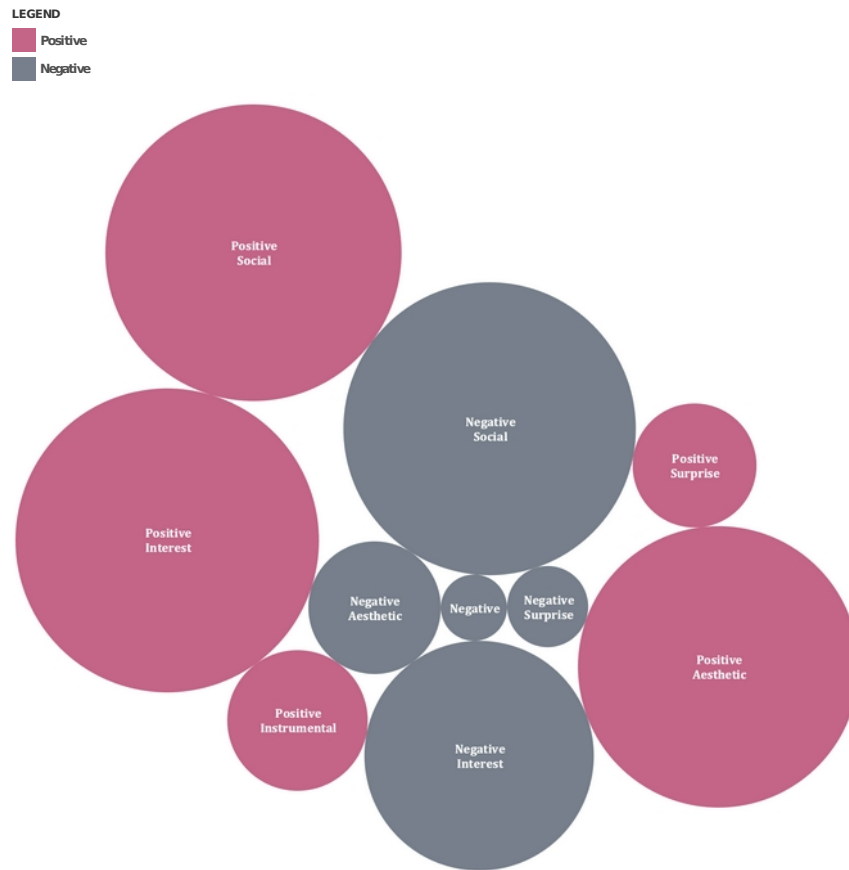


Figure 6. Distribution of reported product emotions by type/affect in a bubble chart.

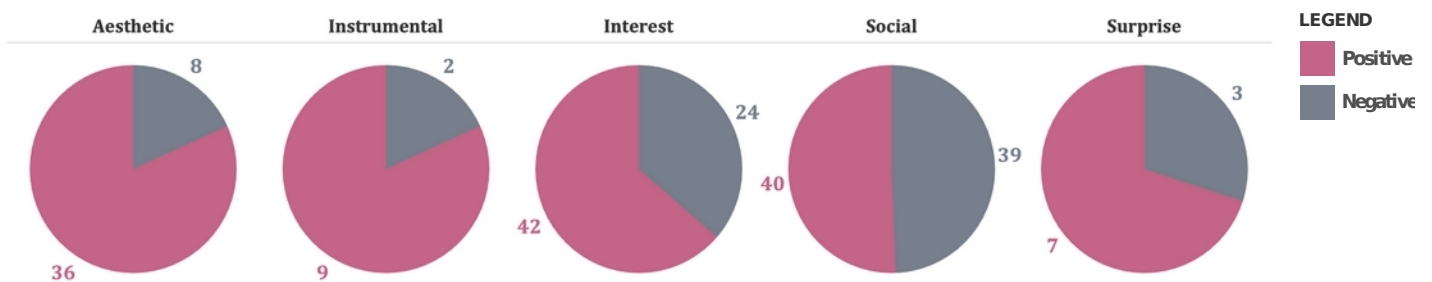


Figure 7. Distribution of reported product emotions in pizza charts by type.

Observing the first two charts, we can note that Positive emotions were most dominant across the participants, with Positive Interest emotions being the most occurrent group (42 in 106 reports). Positive Social (40) and Negative Social (39) emotions were the second and third most expressive types. Social emotions were the only group where Positive and Negative emotions demonstrated a similar number of reports. Aesthetic, Instrumental, and Surprise emotions shown a predominance of Positive emotions in general.

The majority of Negative emotions were related to the disregard of social isolation norms by others and to political events, which would normally fall under the Social emotion type. Some examples are "anger", "indignation", "irritation" and "disdain". As for Positive emotions, the most occurrent reasons were being able to check up on friends and family or remembering pleasant moments with them. We initially thought of "Nostalgia" and "Saudade" as inherently Negative emotions. According to the Lexico dictionary, "Saudade" can be translated as "a feeling of longing, melancholy, or nostalgia that is supposedly characteristic of the Portuguese or Brazilian temperament" (Oxford University, 2020). After considering the context where those emotions were reported and the concerns behind them,

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we have discovered that they were not necessarily unpleasant for all of the participants. A portion of these reports was associated with encountering pictures taken before the pandemic and were linked with pleasant feelings, such as "hope" and "happiness". Although there is some discussion on whether Saudade has a positive or negative component associated with it, for the scope of this study, we have decided to consider what other feelings came along to make the decision. "Inspiration" was also a very occurrent feeling that was often found alongside Aesthetic emotions. Many participants reportedly used the app to seek inspiration and pleasurable themes like animals, art, and decoration.

Another type of Negative emotion that was recurrently reported was Negative Interest. Reports like "Boredom", "Anxiety", and "Melancholy" were very occurrent, often associated with the dullness of repetitive content being delivered through the Feed, Stories, or the Explore tab. Almost half of the participants said that they felt "entertained" or "distracted" after using Instagram. We have considered these to be Positive Interest emotions since the most occurrent goal for using the app amongst participants was "just for distraction" (66% of participants).

We have also correlated the emotions affectivity to the reported alteration of use frequency, and the resulting chart can be seen in Figure 10. However, it must be considered that frequent users will tend to report more emotions as well. Considering that fact, we have also analyzed the median Arousal and Pleasure tendencies for each frequency alteration group.

Although all frequency groups have reported mostly positive emotions, the groups "sharp decrease in use" and "sharp increase in use" had a greater predominance of Positive emotions, as we can see in figure 8.

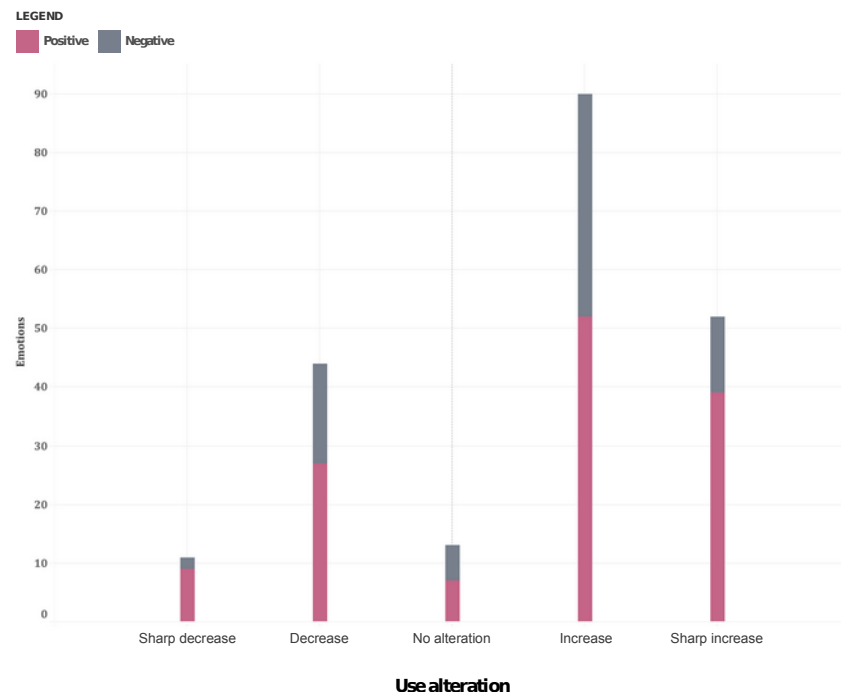


Figure 8. Emotion affectivity by frequency of use alteration groups.

As it can be observed in figure 9, the Pleasure medians ranged between 2.4 and 3.0 in the five use alteration groups. The group "sharp decrease in use" has tended to demonstrate more Pleasure than other groups (median of 3.0). However, groups 1 and 2 (increase and sharp increase in use) have slightly higher Pleasure tendencies.

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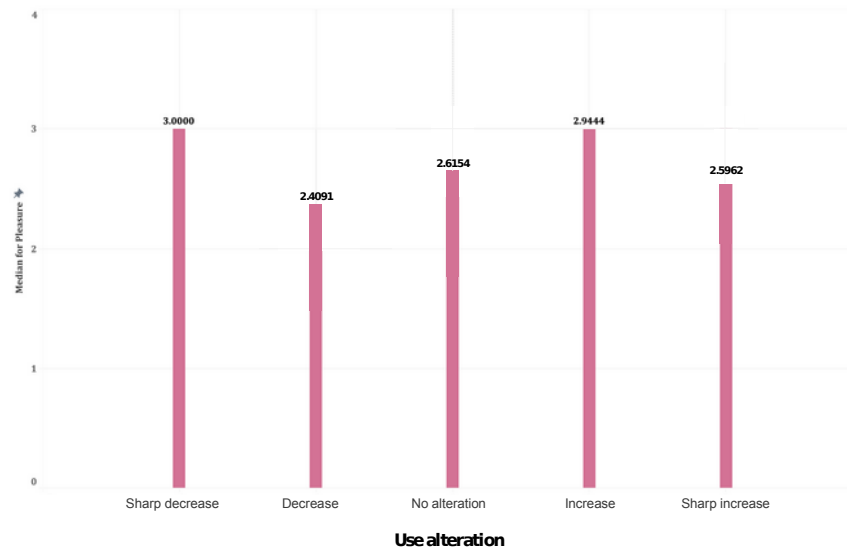


Figure 9. Median for Pleasure by frequency of use alteration groups.

Considering the Arousal tendencies by frequency of use alteration group in figure 10, we can observe that the group “decrease in use” tended to feel more Aroused than other groups. The Arousal medians in the five groups ranged from 1.5 to 2.5 by the end of the experiment.

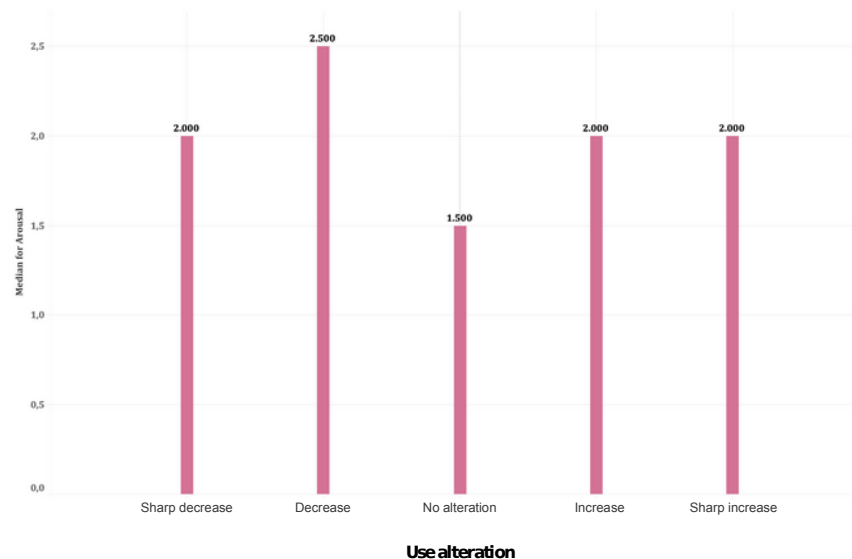


Figure 10. Median for Arousal by frequency of use alteration groups.

4. DISCUSSION AND CONCLUSIONS

In this work, we have explored aspects of emotional experiences in the interaction with the Instagram app, considering the context of the COVID-19 pandemic in Brazil. Observing the results, it can be stated that most participants have reported more Positive emotions than Negative ones. Despite variations of proportions between respondents, none of them have reported more Negative emotions than Positive ones. However, even with the predominance of Positive emotions, the Pleasure tendency of the group was still around 2.5 out of 5.0. We must consider the expressiveness of each participant in this case. Aside from that, the Positive emotions were frequently associated with being able to check up on friends, colleagues and family (“a warm sensation seeing my friends’ smiling”, “Quite happy to see old videos of me and my friends”, “Felt informed after seeing how my friends are doing”), or with pleasurable content like domestic animals, art and news that they consider being good (“I’ve felt delighted with so many cat pictures”, “Inspired to see so many talented Brazilian

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female artists"). That reinforces the hypothesis that isolated individuals already had the habit of using Instagram before the pandemic. The product represents an efficient means of keeping in touch with dear ones and with the world outside.

Nevertheless, often the same type of content that brought participants Positive feelings, depending on the context and how it was presented, conveyed Negative ones as well. While keeping themselves informed about their friends, some participants reported feeling overwhelmed by notifications or repetitiveness of content ("Felt bored seeing the same pictures taken from the same angles and monuments again and again", "So much information, I don't remember what I saw", "Overwhelmed by all that repetitive content"). Negative emotions related to excess and repetitiveness of content represented 15% of all reported emotions. Considering that, it can be hypothesized that the way Instagram delivers content to its users can convey them anxiety for never feeling "done" with all the information it presents. Recent work in psychology research associates frequent social media use to mental exhaustion and stress (Sriwilai & Charoensukmongkol, 2016; Thomée et al., 2007). Field specialists like Tristan Harris (2016) have elaborated on how most content feeds are designed to keep people from leaving and reconsidering their consumption (Harris, 2016). In the context of social isolation due to the pandemic, Gao et al. (2020) examined the correlations between mental health problems and social media exposure during the COVID-19 outbreak in Wuhan, China. Their findings report that the general population is combating an "infodemic" in parallel with the pandemic (Gao et al., 2020). This "infodemic" can be described as the excessive amount of information isolated people expose themselves to on a daily basis. Although the present study has a different scale and purpose, we can formulate that the repetitive, "never-ending" way Instagram presents its content can intensify the same feelings of exhaustion and stress.

Elaborating on content, we have observed that the most and least frequent users reported proportionally less Negative emotions than the intermediary frequency groups. This observation raises the hypothesis that a frequent user has more opportunities for understanding how to curate their content, limiting topics, and people that can bring them negative emotions or unpleasantness. A non-frequent user can either have already curated their feed or stay in the platform enough time to fulfill a set of tasks and then leave. Therefore, we raise the question of how social media apps can provide efficient tools for users to control their content consumption. We can observe the contradictions between Positive emotions and Pleasure/Arousal reports in the study. Some participants reported their observations on how, despite talking about pleasurable emotions in their text entries, they did not feel compelled to report higher pleasure/arousal levels in the sliders. Therefore, we can question if all the positive experiences Instagram has conveyed to the participants are healthy and positive for them in the long run.

Considering all observations, we can conclude that Instagram has brought mostly positive emotions to the participants, based on how it was a tool for communication, information, and entertainment. For isolated individuals, television, video-on-demand, and social media apps were important ways of keeping in touch with the world and with friends and family. However, users still have to be aware of their content and information consumption to avoid unhealthy states of mental exhaustion and stress, especially in the isolation context. According to the World Health Organization, in a post-pandemic world, "regarding what is happening during this pandemic for people, [...] mental health will be a problem in general," (World Health Organization, 2020). In the light of the present moment, it is relevant to

discuss how can designers and other decision-makers provide tools for users for rethinking their content consumption and usage in a healthy, self-conscious, and autonomous way.

5. FUTURE WORK

Given the exploratory scope of the study and the current scenario, we concluded that the Instagram Diary Study was an efficient technique for collecting insights and raising hypotheses on the emotional experiences of isolated individuals in the pandemic. Although some participants were more talkative and engaged than others, we were able to carry satisfactory participation rates throughout the fourteen days of study. For future work using this format, we recommend pairing the Diary Study with other user research methods, like interviews, aimed to remove any biases and test hypotheses. Considering that the Diary Study and interviews provides subjective and self-reported data, it is also relevant to combine these methods with objective emotional response measuring tools. Some examples include Eye tracking, Galvanic Skin-response (GSR) and EEG headsets (Schall, 2014). We intent to run broader studies around the same research problem and evaluate other product emotion models for that matter. In the future, an emotional experience model regarding digital products or social media apps specifically might be a research goal.

ACKNOWLEDGMENTS

This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) - Finance Code 001.

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