

# How technological and natural consumption experiences impact consumer well-being: The role of consumer mindfulness and fatigue

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## Abstract

New technologies are becoming increasingly common in consumers' daily lives, and they are significantly changing consumer experiences. Given the novelty and pervasiveness of these technologies, understanding their effects on consumer well-being is important. This research explores how technological versus natural experiences in consumption contribute to consumer well-being, which is defined as happiness (with its components of pleasure and meaning) and life satisfaction. The results demonstrate that the type of experience (i.e., natural or technological) affects meaning and pleasure and, consequently, life satisfaction. These effects depend on two individual characteristics: consumer mindfulness and fatigue. When consumer mindfulness is high, the type of experience does not affect pleasure and meaning as consumers consistently derive high levels of both components of happiness. However, when their mindfulness is low, pleasure depends on the type of experience. Similar patterns are observed for meaning, although this is affected by the level of fatigue felt by consumers. Therefore, meaning is affected by the two individual characteristics of mindfulness and fatigue. By demonstrating the importance of consumer mindfulness in protecting individuals from fatigue and the potential negative effects associated with technological and natural consumption experiences, this study identifies practical insights that can be used to shape technological and natural experiences that support consumer well-being.

## KEYWORDS

consumer fatigue, consumer mindfulness, consumer well-being, consumption experience, happiness, life satisfaction, natural experience, technological experience

## 1 | INTRODUCTION

New technologies, such as artificial intelligence, the Internet of things (IoT), augmented reality (AR), and virtual reality (VR), play an important role in consumers' daily lives. They are significantly changing how

consumers plan their future purchases, buy products in both physical and online stores, use products, and share their experiences with other consumers (Flavián et al., 2019; Hoyer et al., 2020; Puntoni et al., 2021). In other terms, these technologies are revolutionizing consumer experiences in every phase of the customer journey (Hoyer et al., 2020;

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Zarantonello & Schmitt, 2023). The COVID-19 pandemic accelerated this process, as many consumers were forced to rely on new technologies as a sole means of continuing their routine activities such as working and socializing (Sheth, 2020). Given the ubiquity of new technologies and their central role in the consumer experience, understanding how technological experiences impact consumer well-being is invaluable from both a psychology and marketing perspective (Benvenuti et al., 2023).

This paper addresses this topic by exploring how technological versus natural experiences in consumption influence consumer well-being, which is defined as consisting of both happiness and life satisfaction. A broad perspective that combines hedonic and eudaimonic views of happiness is adopted, which results in happiness being viewed as both a “pleasurable life” and a “meaningful life” (Baumeister et al., 2013; Peterson et al., 2005). This work, therefore, expands the growing literature on new technologies and their impact on consumers. To that end, it compares technological experiences with natural ones, and it considers the impact of such experiences on consumers beyond the effects related to the market (e.g., attitudes and purchase intention).

This paper additionally investigates the role played by two important variables: consumer mindfulness, a state of being attentive to and nonjudgementally aware of the present moment (Sauer et al., 2013), and fatigue, a state of physical and/or mental exhaustion (Mendoza-Ruvalcaba et al., 2022). While mindfulness may act as a facilitator of consumer well-being, fatigue may negatively affect consumer well-being. As indicated by recent research, fatigue has become increasingly central since the COVID-19 pandemic with consumers reporting higher levels of physical and mental tiredness relative to the pre-COVID era (Azzolino & Cesari, 2022). However, the literature supports mindfulness practices as an effective method of alleviating these negative effects in a variety of contexts (e.g., Kudesia et al., 2022).

Building on these assumptions, this paper proposes that technological and natural experiences in consumption contribute to consumer well-being through the following paths: (a) the type of experience (technological vs. natural) affects pleasure and meaning, depending on the level of consumer mindfulness and fatigue; and (b) pleasure and meaning, in turn, affect life satisfaction. The proposed relationships are tested using three empirical studies, two of which are surveys and one of which is an experiment. The following sections present the theoretical background and proposed hypotheses, describe the empirical studies implemented to test hypotheses, and finally discuss the implications and provide directions for further research.

## 2 | LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

### 2.1 | Consumer well-being

The concept of consumer well-being first appeared in marketing and consumer research literature in the 2000s (Seligman & Csikszentmihalyi, 2000), when understanding how marketing activities impact consumer well-being became relevant. Consumer well-

being is directly affected by marketplace experiences that can generate satisfaction or delight in consumers and indirectly affected by experiences in other life domains relevant to consumers, such as work, family, leisure, and finance. Although various perspectives have been employed to theorize consumer well-being (Sirgy et al., 2007), recent research investigates this concept primarily from a micro perspective, treating it as a psychological construct derived from consumers' evaluations of their individual well-being (Benvenuti et al., 2023). Perceived well-being is a key concept in positive psychology, which is defined as “the scientific study of positive human functioning and flourishing on multiple levels that include the biological, personal, relational, institutional, cultural, and global dimensions of life” (Seligman & Csikszentmihalyi, 2000, p. 13). This branch of psychology takes an interest in individuals' positive experiences, thus differing from the traditional psychological approach that emphasizes unpacking and overcoming negative experiences.

The properties and boundaries of well-being are debated in the psychology literature (Martela & Sheldon, 2019). Although sometimes used as a synonym for happiness, well-being is generally viewed as a distinct, broader concept (Raibley, 2012). Subjective well-being (SWB) is conceptualized as an umbrella term that describes “the level of well-being people experience according to their subjective evaluations of their lives” (Diener & Ryan, 2009, p. 391). The major components of SWB include happiness, which is defined as the assessment of the balance between positive and negative affect in one's life, and life satisfaction, which is defined as the assessment of one's life against personal aspirations and goals (Diener, 1984). This definition, based on Epicurus' doctrine of hedonism and hedonic psychology (Kahneman et al., 1999), equates happiness with pleasure. This definition is complemented by the eudaimonic view. The eudaimonic orientation, which can be traced back to Aristotle, posits that true happiness can be found in the expression of virtue, that is “doing what is worth doing” (Ryan & Deci, 2001, p. 145).

Additional interpretations of well-being have been developed according to this perspective (Ryan & Deci, 2001). For example, psychological well-being is defined as “the striving for perfection that represents the realization of one's true potential” (Ryff, 1995, p. 100) and is characterized by six components: autonomy, personal growth, self-acceptance, life purpose, mastery, and positive relatedness. All of these factors are associated with emotional and physical health (Ryff & Singer, 2008). Self-determination theory, a theory of human motivation based on the notion of eudaimonia, is founded on this perspective, viewing self-realization as a central aspect of well-being. Self-determination theory postulates what it means to actualize the self and how individuals can accomplish this feat (Ryan & Deci, 2001). Recent studies in psychology adopt a unified perspective of well-being, supporting conceptualizations that regard it as both a hedonic and eudaimonic construct (e.g., Martela & Sheldon, 2019; Peterson et al., 2005).

Well-being in marketing and consumer research has traditionally been viewed from a hedonic perspective and treated as SWB (e.g., Davvetas et al., 2022). However, consistent with the latest

developments in psychological literature, well-being has been increasingly considered from a broader perspective that combines both hedonic and eudaimonic approaches (e.g., Brakus et al., 2022; Chang et al., 2020). This allows for a richer understanding of well-being in a market and consumption setting. Aligned with these latest developments, this paper adopts a conceptualization of well-being as being structured by different, interconnected components (i.e., happiness and life satisfaction) and regards both pleasure and meaning as contributing to life satisfaction (e.g., Zarantonello et al., 2021) (see Figure 1).

## 2.2 | Technological versus natural consumption experiences and consumer well-being

In accordance with the literature (e.g., Flavián et al., 2019; Hilken et al., 2022), this research considers technological and natural consumption experiences as part of a continuum. At one end of this continuum are technological experiences, which include experiences that are characterized by more technological versus natural content (e.g., online store visits). At the opposite end of this continuum are natural experiences, which include experiences that have more natural versus technological content (e.g., physical store visits). Between these two points are experiences that combine both technological and natural components, such as experiences that adopt information technologies to support, enhance, or convey some aspects of a natural setting (e.g., in-store AR applications). Table 1 focuses on new technologies, detailing key empirical papers that have examined technologies from an experiential viewpoint and demonstrating the growing interest of scholars in how new technologies can impact consumers' experiences.

Although some criticalities, particularly in relation to technological experiences, have been acknowledged in the literature (Lima & Belk, 2022), both technological and natural experiences can be beneficial for consumers and contribute to their well-being. With regard to technological experiences, psychology literature has demonstrated that new technologies can improve life satisfaction (e.g., Lissitsa & Chachashvili-Bolotin, 2016), and they can also serve as a source of pleasure and meaning for consumers, which are considered the antecedents of life satisfaction (Brakus et al., 2022). AR, VR, and mixed-reality technologies, for example, allow for greater aesthetic experiences (Yuan et al., 2021), generate satisfaction (Poushneh & Vasquez-Parraga, 2017a), increase enjoyment (Martínez-Molés et al., 2022), and offer multisensory stimulation in the various phases of the consumer journey (Heller et al., 2019). Moreover, robots and chatbots can trigger joy, love, surprise, interest, and excitement (Filiari et al., 2022), satisfaction (Shin et al., 2023), and feelings of immersion (Rancati & Maggioni, 2023). Technological experiences also offer consumers the opportunities to improve themselves (e.g., through online learning) and nurture their social relationships (Sheth, 2020), and they can also be used to assist consumers in their general health care and the treatment of their illnesses (Gaczek et al., 2023).

In relation to natural experience, the psychology literature indicates that these experiences, characterized by limited technological components or a lack thereof, can also be beneficial to individuals and their well-being. Recent research has investigated the possible negative effects of technology overconsumption (e.g., Büchi et al., 2019) and explored how "digital detox" mitigates the negative impact arising from the extensive use of new technologies (Radtke et al., 2022). The extant literature offers ample evidence to support the benefit of spending time in natural environments and engaging in various types of outdoor activities, such as physical, recreational, and leisure activities, in which individuals can connect with the natural world (Martin et al., 2020). Various studies have shown that nature connectedness is positively associated with both hedonic and eudaimonic happiness (Capaldi et al., 2014; Pritchard et al., 2020). This evidence indicates that experiences in the natural world can improve mood, fostering a variety of positive emotions including pleasure, enjoyment, wonder, and boosted vitality (Ryan et al., 2010). This act is also associated with eudaimonic happiness indicators such as autonomy, vitality, meaning, and personal growth (e.g., Pensini et al., 2016). Ultimately, natural experiences are positively associated with life satisfaction, both directly and indirectly, through pleasure and meaning (Howell et al., 2013; Pritchard et al., 2020).

In light of the relationships between technological versus natural experiences and the components of well-being (i.e., pleasure, meaning, and life satisfaction), this study postulates that technological and natural experiences are positively associated with pleasure and meaning, which, in turn, are positively associated with life satisfaction (see Figure 1a). Therefore, the following hypotheses were developed:

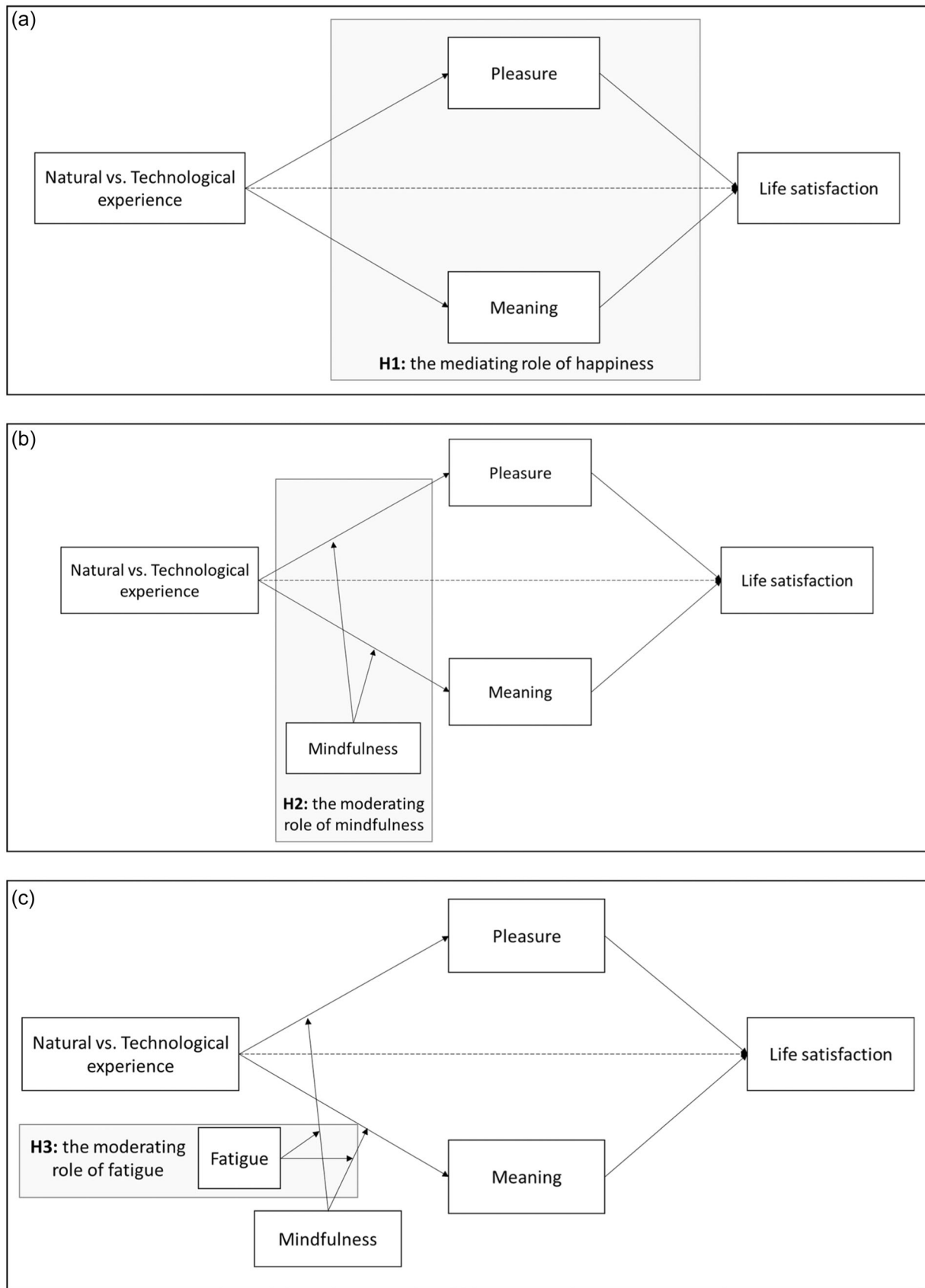
**H1:** The effect of natural versus technological experiences on life satisfaction is mediated by happiness.

**H1a:** The more pleasure experienced by consumers, the higher their life satisfaction.

**H1b:** The more meaning experienced by consumers, the higher their life satisfaction.

## 2.3 | Mindfulness

Mindfulness is a psychological construct that is typically considered a personality trait (i.e., a stable disposition that people possess) that can be further developed with training (Ndubisi, 2014). Mindfulness refers to a state of being attentive to and nonjudgementally aware of the present moment. It implies a sense of being in the present, vivid awareness of sensory and mental experiences, and a lack of automatic cognitive evaluation processes (Sauer et al., 2013). Mindfulness is a state of being conscious (Gadhavi & Sahni, 2020). It is distinct from other conscious states such as self-awareness and self-control; mindfulness is not merely self-reflection or linking experiences across time. Instead, mindfulness is characterized by attention to and awareness of what is taking place in the present moment (Brown & Ryan, 2003; Petter et al., 2013; Van De Veer et al., 2016).



**FIGURE 1** The proposed model and hypotheses. (a) Graphical representation of H1, (b) graphical representation of H2, and (c) graphical representation of H3.

TABLE 1 Key empirical papers on new technologies from an experiential perspective.

References	Type of new technology	Type of consumer experience	Aspects of well-being	Context	Key findings
Batat (2021)	AR	Dining experience	Food well-being	Restaurant	AR can positively or negatively influence consumers' perceptions which, in turn, can influence attitudes. It can also improve overall food well-being and lead to positive postconsumption behaviors.
Butt et al. (2021)	AR	Pleasurable experience (perceived enjoyment)	–	Beauty	AR positively influences satisfaction and continuous intention to use the product.
Chen et al. (2021)	AI	Online consumer experience	–	Retailing	The usability and responsiveness of the chatbot positively influence, respectively, the extrinsic and intrinsic values of the consumer experience which, in turn, positively affect consumer satisfaction.
Farah et al. (2019)	VR	Multisensory experience	–	Shopping	There is an expectations gap created by the usage of VR; a discrepancy exists between the virtual and actual generic in-store experience.
Filieri et al. (2022)	Robots	Consumer experience with service robots	–	Service	Interacting with robots triggers emotions of joy, love, surprise, interest, and excitement. Service robots trigger more emotions when they move. Consumer discontent results from robots' malfunctioning.
Grazzini et al. (2023)	Robots	Service experience	–	Service	A robot high (vs. low) in human likeness is associated with more negative consumer responses. However, when consumers interact with a warm (vs. competent) robot high in human likeness, this negative effect vanishes.
Hernandez-Ortega and Ferreira (2021)	VA	Smart experience	–	Service	Smart experiences have a positive effect on consumers' passion for technology. Passion explains consumers' intimacy and commitment, both of which are associated with service loyalty.
Huang et al. (2019)	AR	Online rapport experience	–	Fashion	Modality, synchronous sense of ownership control, and reprocessability of AR try-on systems positively affect consumer rapport experience; body surveillance and fashion consciousness moderate the effects of AR try-on systems on consumer rapport experience.
Jiménez-Barreto et al. (2021)	Chatbot	Motivational consumer experience with chatbots	–	Hospitality and tourism	Self-determined interaction has a positive effect on consumer experience which, in turn, has a positive effect on attitudes toward and satisfaction with the chatbot.
Kim and Hall (2019)	VR	Flow experience	VR subjective well-being	Tourism	The effect of enjoyment on flow state is related to subjective well-being. Both flow state and subjective well-being significantly influence the continued use of VR. Visitor/nonvisitor status moderates the relationship between usefulness and flow state.
Ma et al. (2023)	Robot	Dining experience	–	Restaurant	Different levels of robotic technologies are identified at the product level. Consumer experiences with robotic restaurants are characterized by three of the four experience economy themes: entertainment, education, and aesthetics.

(Continues)

TABLE 1 (Continued)

References	Type of new technology	Type of consumer experience	Aspects of well-being	Context	Key findings
Martínez-Molés et al. (2022)	VR	Virtual experience	-	Tourism	VR is characterized by the central role of the feeling of presence, which positively impacts users' enjoyment, brand attitude, product knowledge, and purchase intent.
McLean and Barhorst (2022)	VR	Immersive VR experience/authentic experience	-	Tourism	VR plays a significant role in managing consumers' expectations by providing an authentic experience and stimulating the development of detailed mental imagery before their visit.
Moore et al. (2022)	AI	In-store shopping experience	-	Retailing	Social tensions are experienced by consumers when engaged with an AI digital human perceived as the "life of the party." When a nonhuman interface is present, consumers paradoxically both feel the need to avoid and to have real human interaction.
Nguyen et al. (2022)	AI	Flow experience	-	Hospitality	Flow experience, along with customer-brand identification, significantly mediates the relationship between AI quality and customer advocacy.
Players and Poncin (2020)	VR	Nonimmersive VR experience	-	Service	VR allows consumers to have better visiting experiences and more positive attitudes toward both the products and the service provided.
Plotkina et al. (2022)	AR	Perceived AR app experience	Pleasure	Fashion	Virtual try-on AR apps receive more positive evaluations. They lead consumers to perceive the brand as more exciting, sincere, competent, and sophisticated. The playfulness and pleasure experienced with the AR app positively influence consumers' attitudes toward the app.
Poushneh (2021)	VA	Flow experience	-	Service	Voice interaction with a VA characterized by functional intelligence, sincerity, and creativity allows consumers to take control of their voice interactions with the VA, focus on their voice interaction, and engage in exploratory behavior. This behavior leads to consumer satisfaction and willingness to continue using VA.
Poushneh and Vasquez-Parraga (2017b)	AR	User experience	-	Shopping and entertainment	The higher the discrepancy between consumers' actual experience and expected experience with AR, the lower the level of satisfaction and the higher the level of dissatisfaction.
Prentice and Nguyen (2020)	AI	Service experience with employees/AI	-	Hospitality	Although consumers prefer employee service, service experiences with both employees and AI are significantly related to customer engagement and loyalty. These service experiences also have partial mediation effects on customer loyalty.
Romano et al. (2022)	AR	Retail experience	-	Shopping	Four distinct segments of consumers vary in their attitude toward AR as a shopping tool (i.e., AR Averse, AR Hesitant, AR Open, and AR

TABLE 1 (Continued)

References	Type of new technology	Type of consumer experience	Aspects of well-being	Context	Key findings
Shen et al. (2020)	VR	Branded VR experience	-	Education	VR is associated with a sense of telepresence, enjoyment, and appreciation for going places not accessible to participants in real life. Perceived telepresence negatively affects recall of targeted locations in the virtual tour, whereas telepresence is positively correlated with intentions to recommend the university campus to others.
Shin (2017)	IoT	User experience	-	Service	Quality of experience is determined by perceived utility, hedonic value, and IoT features including system, content, and service.
Sung et al. (2021)	AI/MR	Novel experience	-	Retailing and entertainment	Quality of AI increases MR immersion, MR enjoyment, and consumers' perceptions of novel experiences which, in turn, increase consumer engagement, purchase intentions, and intentions to share experiences with social groups.
van Berlo et al. (2021)	VR	Computer-mediated consumer experiences (emotional response)	-	Gaming	The appeal of virtual products strengthens the effect of brands in VR games on brand attitude. Brands in VR games elicit emotional responses which drive brand attitude and purchase intention.
Yuan et al. (2021)	AR	Flow experience	-	Shopping	Perceived informativeness, perceived aesthetics, perceived novelty, and parasocial relationships positively affect consumers' flow experience, which in turn positively influences psychological ownership.
This paper	New technologies (self-reported)	Technological and natural experiences in consumption	Happiness (pleasure and meaning) and life satisfaction	Any consumption context (self-reported)	The type of consumption experience (natural versus technological) affects consumer well-being: the type of experience affects meaning and pleasure and, in turn, life satisfaction. These effects depend on two individual characteristics: consumer mindfulness and fatigue.

Abbreviations: AI, artificial intelligence; AR, augmented reality; IoT, Internet of things; MR, mixed reality; VA, voice assistant; VR, virtual reality.

Thus, mindfulness is concerned not with acting on thoughts or sensations but simply observing them (Papies et al., 2015).

The dimensionality of mindfulness has long been debated in psychology literature, considered both as a unidimensional construct that consists of attention/awareness of the present moment (Brown & Ryan, 2003; Petter et al., 2013) and a multidimensional concept comprising several common dimensions including awareness, attention, presence or present focus, observation, and acceptance or nonjudgment (Rau & Williams, 2016). Despite the debate surrounding its dimensionality, the literature nonetheless supports a strong relationship between mindfulness and well-being. Studies have shown that mindfulness can affect various well-being indicators, including hedonic and eudaimonic happiness, as well as life satisfaction (e.g., Brown & Ryan, 2003; Skudder-Hill & De Sarkar Ghosh, 2020). In addition, mindfulness is shown to reduce the impact of negative events on individuals (e.g., Ioannou et al., 2022).

Consumer mindfulness is an important variable in consumer behavior (Ndubisi, 2014). Mindful consumption is defined as “an inquiry-based process that endows consumers with awareness and insight to choose their responses rather than react blindly or habitually” (Bahl et al., 2016, p. 200). Mindfulness helps conscious food intake and fashion consumption (Gadhavi & Sahni, 2020; Van De Veer et al., 2016), and is a protective factor in the avoidance of overconsumption (Bhattacharjee et al., 2021).

Regarding technological and natural experiences, the literature posits that mindfulness can moderate the effects of new technologies or natural contexts on well-being. In terms of technological experiences, mindfulness is positively associated with the acceptance of new technologies, including the development of more favorable attitudes toward mobile payment adoption and stronger intentions to use this technology. It is also related to the adoption of green technological products (e.g., Flavián et al., 2020). Mindfulness furthermore plays a significant role in reducing the negative impact of new technologies on individuals, such as technostress, and in supporting consumers' intentions to continue using the technologies (e.g., Wu, Zhou, et al., 2022).

In relation to natural experiences, the relationship between mindfulness and natural contexts is important as mindfulness fosters positive ecological and prosocial behavior (e.g., Apaolaza et al., 2022) and is associated with increased nature connectedness (e.g., Sadowski et al., 2022). Mindfulness is a determining factor in facilitating this connectedness; exposure to natural settings alone is shown to be ineffective in increasing consumer well-being (Mantler & Logan, 2015).

In accordance with these findings, the current paper hypothesizes that the effect of the type of experience on consumer well-being depends on consumers' levels of mindfulness. Because both natural and technological experiences can improve consumer well-being and because mindfulness can act as a facilitator of consumer well-being (Brown & Ryan, 2003; Hilken et al., 2022), this paper hypothesizes that consumers with high levels of mindfulness derive happiness from their lived experiences, independent of the type of experience (natural or technological). However, the happiness derived from an experience by consumers with low levels of mindfulness depends on the type of experience.

The Attention Restoration Theory (Kaplan, 1995) emphasizes the ability of natural experiences to recharge and restore, postulating that individuals can improve their cognitive state by spending time in natural settings. Individuals with low mindfulness levels may therefore benefit from the restorative power of the natural world, thereby allowing them to derive happiness from natural experiences. Conversely, technological experiences are not recognized as having restorative properties that may compensate for individuals' limited levels of mindfulness. Therefore, the following hypotheses were developed:

**H2:** Mindfulness interacts with the type of experience when affecting individuals' happiness and, subsequently, their life satisfaction.

**H2a:** When an individual's mindfulness is low, the pleasure and meaning they derive are affected by the type of experience; natural experiences lead to higher levels of pleasure and meaning compared to technological experiences.

**H2b:** When an individual's mindfulness is high, the pleasure and meaning they derive are not affected by the type of experience.

Figure 1b depicts the hypothesized moderating role of mindfulness.

## 2.4 | Fatigue

In psychology literature (e.g., Mendoza-Ruvalcaba et al., 2022), “fatigue” is conceptualized as both objective fatigue (e.g., reaction time or several errors) and subjective fatigue (i.e., fatigue that the individual perceives as interfering with their usual or desired activities). It includes physical and mental components, with the former referring to symptoms that arise after intense or prolonged exercise without sufficient rest and the latter reflecting reduced physiological capacity due to mental or physical efforts (Michielsen et al., 2003).

In psychology, fatigue is examined in relation to its antecedents (e.g., past or current illnesses, such as cancer) as well as its consequences (e.g., Morrow et al., 2002). These consequences include reduced cognitive and physical functions in addition to decreased well-being (e.g., Abd-Elfattah et al., 2015), which can be eased through mindfulness practices (Ikeuchi et al., 2020). By increasing individuals' awareness of their thoughts and physical bodies, mindfulness interventions have demonstrated effectiveness in reducing anxiety, depression, pain, and sleep disturbance, all of which are fatigue-related factors (Ikeuchi et al., 2020). Fatigue is one of the most common symptoms reported in COVID-19 cases during and after the pandemic (Azzolino & Cesari, 2022), and its relevance has been demonstrated in a variety of contexts. In marketing and consumer research literature, for example, fatigue is shown to affect consumer behavior (Bardey et al., 2022; Ursu et al., 2023).



In relation to technological experiences, there is evidence that new technologies can produce fatigue. For example, fatigue can be a result of using social media mobile banking, consumer wearables, mobile applications, and equipment for providing biofeedback (Bright et al., 2022; Logan et al., 2018; Lyu et al., 2022; Peake et al., 2018). However, mindfulness can mitigate the effects of fatigue related to new technologies. By increasing individuals' self-awareness, mindfulness provides a psychological armor for better coping with and managing possible harmful situations associated with new technologies, such as aggressive online behavior, misinformation sharing, technostress, and social media anxiety (Charoensukmongkol, 2016; Islam et al., 2020; Wu, Li, et al., 2022).

With respect to natural experiences, natural contexts are not typically associated with fatigue in literature, as they represent a means through which individuals can reduce their daily fatigue (Capaldi et al., 2015). However, those who suffer from high fatigue levels may lack the capacity to effectively cope with the challenges presented by natural contexts and encounter negative feelings, such as frustration and despair (Olsen, 2022).

This study therefore hypothesizes that, depending on individual levels of mindfulness, fatigue affects the relationship between technological/natural experiences and well-being. Consumers with high fatigue and low mindfulness may be less able to cope with the physical and/or mental tiredness associated with technological and natural experiences. Because fatigue is more strongly associated with information technologies than natural settings (e.g., Wu, Li, et al., 2022; Wu, Zhou, et al., 2022), the hypothesized effect will be stronger for technological experiences compared to nontechnological ones. When consumers present high fatigue as well as high mindfulness, no effects are expected as mindfulness is a protective factor, helping consumers cope in such situations. Therefore:

**H3:** Fatigue interacts with mindfulness to affect individuals' happiness and, subsequently, their life satisfaction.

**H3a:** When individuals have low mindfulness levels, the pleasure and meaning they experience are affected by their levels of fatigue; low fatigue levels lead to higher pleasure and meaning compared to high fatigue levels, for technological more than natural experiences.

**H3b:** When individuals have high mindfulness levels, the pleasure and meaning they experience are not affected by their fatigue levels.

Figure 1c depicts the hypothesized moderating role of fatigue.

### 3 | OVERVIEW OF THE EMPIRICAL RESEARCH

Three studies were conducted to test the hypotheses. To increase the reliability and robustness of the results, the data were collected in different periods: during two separate lockdown periods and, lastly,

in a period where no restrictions were present. A mixed method approach (i.e., both quantitative and qualitative analyses) was employed. Table 2 provides an overview of the studies.

The first two studies were surveys conducted during two respective lockdown periods. In these periods, an increasing number of consumers had to turn to technology to continue their usual activities, quickly bridging the gap between technological and natural experiences. Study 1 was conducted in the United Kingdom during the COVID-19 lockdown in June 2020. Study 1 collected (a) qualitative data on consumers' perspectives on natural and technological experiences and (b) quantitative data to test H1. Study 2 was also conducted in the United Kingdom during a COVID-19 lockdown period (March 2021) and collected quantitative data to test H2 and H3. To increase the external validity of the research, a third study was conducted to test hypotheses 2 and 3. Study 3 entailed experimental research conducted in the United Kingdom in May 2023, a nonlockdown period characterized by unrestricted consumption patterns.

The analysis of the qualitative data collected in study 1 revealed that natural and technological experiences had specific characteristics (see Appendix A), and Studies 1 and 2 indicated that these characteristics affected consumer well-being. As such, the aim of Study 3 was to increase the robustness of the findings by testing the proposed model in a different consumption context characterized by no limitations or restrictions on individuals.

## 4 | STUDY 1

### 4.1 | Research design

Study 1 was conducted to test the mediating role of pleasure and meaning on the relationship between the type of experience (technological vs. natural) and life satisfaction (i.e., H1). First, the respondents were asked to describe one of their consumption experiences from the previous 3 months. This task was described in the following prompt: "We would like you to describe extensively a consumption experience that you lived during the last three months. This can be an experience of any type and any frequency." Participants were asked to describe the experience in detail before moving on to the questionnaire to allow for the recall of useful elements for correct and accurate item answers and the qualitative analysis of their consumption experiences. Participants were then asked to answer, on 7-point Likert scales, items that measured their happiness and life satisfaction following that experience. The independent, mediating, and dependent variables were measured in addition to the participants' perceptions of the experience's characteristics. For valence, a positive–negative semantic differential scale was used, in which 1 = *positive* and 7 = *negative*. To measure social nature, an individual–collective semantic differential scale was adopted, where 1 = *individual* and 7 = *collective*. After finishing the questionnaire, the respondents were debriefed and thanked.

TABLE 2 Overview of the empirical studies.

Objectives	Variables	Sample	Hypothesis being tested
<p>Study 1 examines the characteristics of natural vs. technological experiences through qualitative analysis. The survey aims also to test the mediating role of pleasure and meaning on the relationship between natural vs. technological experiences and life satisfaction through quantitative analysis. The data were collected during a COVID-19 lockdown period.</p>	<p><i>Independent variable:</i> natural vs. technological experience  <i>Mediators:</i> pleasure, meaning  <i>Dependent variables:</i> life satisfaction  <i>Controls:</i> age, gender, income, positive–negative experience, individual–collective experience.</p>	<p><i>Respondents:</i> 196 UK consumers were contacted during the COVID-19 lockdown in June 2020.  <i>Sample characteristics:</i> 54.5% identified as female and 45.5% as male. The participants' average age was 44.85 years (minimum = 18 years; maximum = 79 years), and all lived in the United Kingdom: Greater London = 12.6%; Southern England = 26.8%; Mid England = 24.2%; Northern England = 25.8%; Wales = 2.5%; Scotland = 5.6%; Northern Ireland = 2.5%. In terms of household income, 34.8% of the participants had an annual household income of less than £30,000, 35.4% had an income of £30,000–£65,000, and 29.8% had an income higher than £65,000.</p>	H1
<p>Study 2 is a survey testing the moderated mediation mechanism underlying the relationship between natural vs. technological experiences and life satisfaction through quantitative analysis. The data were collected during a COVID-19 lockdown period.</p>	<p><i>Independent variable:</i> natural vs. technological experience  <i>Moderator:</i> mindfulness, fatigue  <i>Mediators:</i> pleasure, meaning  <i>Dependent variables:</i> life satisfaction  <i>Controls:</i> age, gender, income, positive–negative experience, individual–collective experience, sensory stimulation, affective stimulation, cognitive stimulation, behavioral stimulation.</p>	<p><i>Respondents:</i> 213 UK consumers contacted during the COVID-19 lockdown in March 2021.  <i>Sample characteristics:</i> 110 participants identified as male (51.6%) and 48.4% as female, with an average age of 43.54 years (SD = 15.09). In terms of education level, 50.2% of the participants had an undergraduate degree or higher, 48.4% had a high school education, and 1.4% had lower degrees. The participants were from different areas in the United Kingdom, with 24.9% being from Northern England, 26.3% from Mid England, 25.4% from Southern England, 13.1% from Greater London, 5.2% from Scotland, 2.8% from Wales, and 2.3% from Northern Ireland. Regarding household income, 31.9% of the participants had an annual household income of less than £30,000, 35.7% had an income of £30,000–£65,000, and 32.4% had an income higher than £65,000. Furthermore, 60.7% of the participants were employed full-time, 17.9% were employed part-time, 7.1% were unemployed (both looking and not looking for work), 10.4% were retired, 2.9% were students, and 1% were disabled.</p>	H2, H3
<p>Study 3 is an experiment testing the moderated mediation mechanism underlying the relationship between natural vs. technological experiences and life satisfaction through quantitative analysis. The data were collected in a period in which there were no restrictions.</p>	<p><i>Independent variable:</i> natural vs. technological experience  <i>Moderator:</i> mindfulness, fatigue  <i>Mediators:</i> pleasure, meaning  <i>Dependent variables:</i> life satisfaction  <i>Controls:</i> age, gender, income, positive–negative experience, individual–collective experience, sensory stimulation, affective</p>	<p><i>Respondents:</i> 155 UK consumers were contacted in a nonlockdown period (May 2023) in which there were unrestricted consumption patterns.  <i>Sample characteristics:</i> 80 participants were male (51.6%), 47.7% were female, and 0.06% preferred not to say. The average age was 42.32 years (SD = 12.80). Regarding education level, 59.3% of the</p>	H2, H3

TABLE 2 (Continued)

Objectives	Variables	Sample	Hypothesis being tested
	stimulation, cognitive stimulation, behavioral stimulation.	participants had an undergraduate degree or higher, 39.4% had a high school education, and 1.3% had lower degrees. The participants were from different areas in the UK: 27.1% were from Northern England, 21.3% from Mid England, 21.3% from Southern England, 12.9% from Greater London, 9% from Scotland, 4.5% from Wales, and 3.9% from Northern Ireland. In terms of household income, 36.8% of the participants had an annual household income of less than £30,000, 45.8% had an income of £30,000–£65,000, and 17.4% had an income higher than £65,000. Furthermore, 60.6% of the participants were employed full-time, 16.1% were employed part-time, 12.2% were unemployed (both looking and not looking for work), 6.5% were retired, 1.4% were students, and 3.2% were disabled.	

## 4.2 | The respondents

A total of 200 UK consumers were recruited through a market research agency (Qualtrics) in June 2020, at which time a COVID-19 lockdown period was instituted in the UK (<https://www.instituteforgovernment.org.uk/sites/default/files/timeline-lockdown-web.pdf>). Only the participants who answered the attention check<sup>1</sup> in the questionnaire correctly were retained, with four respondents being excluded for failing the attention check. Thus, the final sample comprised 196 respondents, which was sufficient according to a post hoc power analysis calculated using G\*power. The power was 99% with a medium effect size and a 5% alpha margin of error. The characteristics of the sample are detailed in Table 2.

## 4.3 | The qualitative analysis: The characteristics of technological and natural experiences

First, a qualitative analysis of the experiences reported by the respondents was conducted (see Appendix A). This allowed for an understanding of respondents' conceptions of technological and natural consumption experiences, particularly during a period of radical change such as the COVID-19 lockdown, in which an increasing number of consumers depended on technology to continue their usual activities

and established routines (e.g., speaking to family and friends, shopping, attending school, and working). The findings showed that natural experiences: (a) tended to occur in a broader set of consumption occasions; (b) were perceived as more positive and (c) individualistic; and (d) they provided stronger experiential stimulation to respondents (see Appendix A for detailed results).

It is worth noting that, at the time of the data collection, the technological experiences reported by the respondents included frequent mentions of traditional devices (e.g., standard video game consoles, fitness-related devices, devices for speaking remotely with people) and less frequent mentions to new devices powered by AI (e.g., virtual agents, smart home devices), thus reflecting the nature of the average technological experience recalled by participants.

## 4.4 | The quantitative analysis: The measuring instruments and results

Following an analysis of the characteristics of the experiences reported by participants, the quantitative data was then analyzed to test H1. All variables were measured on 7-point Likert scales. The respondents were asked to evaluate, on a semantic differential scale, the nature of the experience they reported, with *natural* and *technological* acting as scale endpoints ( $M = 2.60$ ,  $SD = 1.82$ ). Respondents were then asked to report their meaning and pleasure connected to the experience; respondents rated their level of agreement with each of the eight items derived from Peterson et al.'s (2005) scale. Four items measured meaning (e.g., "Being engaged in this experience reminded me that my life has a lasting

<sup>1</sup>In all studies, participants' level of attention was controlled by asking them to select a specific score on a 7-point scale (e.g., "Please select number 5") at different points of the questionnaire. These attention checks were used to ensure the retention of participants who provided high-quality responses. Therefore, respondents who failed these checks were removed.

meaning"; Cronbach's  $\alpha = 0.83$ ;  $M = 4.81$ ,  $SD = 1.33$ ), and four items measured pleasure (e.g., "In choosing this experience, I took into account whether it would be pleasurable"; Cronbach's  $\alpha = 0.84$ ;  $M = 5.14$ ,  $SD = 1.10$ ). Life satisfaction was measured using five items adapted from Diener's (1984) scale (e.g., "After being engaged in this experience, I felt satisfied with my life."; Cronbach's  $\alpha = 0.90$ ;  $M = 4.71$ ,  $SD = 1.32$ ). The factor analysis demonstrated that the items loaded on different factors, with the loadings ranging from 0.66 to 0.83 for pleasure, 0.62 to 0.89 for meaning, and 0.64 to 0.87 for life satisfaction. Finally, the respondents rated the experiences' valence (positive or negative;  $M = 2.88$ ;  $SD = 1.84$ ) and social nature (individual or collective;  $M = 4.35$ ;  $SD = 2.27$ ).

A confirmatory factor analysis (CFA) that considered the focal variables of the proposed model was conducted using structural equation modeling (SEM; LISREL; Jöreskog & Sörbom, 1996) to verify the psychometric characteristics of the measures. The fit of the model was found to be adequate (Bagozzi & Yi, 2012;  $\chi^2(62) = 110.55$ ; comparative fit index (CFI) = 0.97; nonnormed fit index (NNFI) = 0.96; root mean square error of approximation (RMSEA) = 0.06; standardized root mean residual (SRMR) = 0.06. All of the factor loadings were high and significant, confirming the convergent validity of the measures. The  $\chi^2$  tests comparing the model without constraints and the model with the parameter that equaled two variables each time were all significant, signifying that the model with more freely estimated parameters fit the data better than alternative models (Hair et al., 2005), and indicating that the discriminant validity of the variables was assessed. The synthetic indices, which summarized the variables, were then calculated.

A mediation analysis (PROCESS Model 4; Hayes, 2022) was then performed. The respondents' demographic characteristics (i.e., age, gender, and income) were controlled for, together with the valence and individual-collective nature of the experience. Table 3 details the results, showing that the experience types significantly affected pleasure ( $b = -0.21$ ;  $p < 0.05$ ; confidence interval [CI] =  $-0.38$ ;  $-0.04$ ) and meaning ( $b = -0.33$ ;  $p < 0.01$ ; CI =  $-0.53$ ;  $-0.14$ ). As such, pleasure and meaning were stronger in natural experiences. Additionally, both pleasure ( $b = 0.31$ ;  $p < 0.01$ ; CI =  $0.13$ ;  $0.50$ ) and meaning ( $b = 0.28$ ;  $p < 0.01$ ; CI =  $0.12$ ;  $0.44$ ) positively influenced life satisfaction. The indirect effects showed that pleasure and meaning significantly mediated the effect of the type of experience on life satisfaction, thus supporting H1 and its subhypotheses, H1a and H1b (Table 3).

The experience valence affected pleasure and meaning; the pleasure and meaning experienced by the respondents were reduced when the experience was more negative. The social nature of the experience and the demographic characteristics considered in the analyses did not affect the model's relevant variables.

## 5 | STUDY 2

### 5.1 | Research design

This study analyzed the interaction effects between consumption experiences (natural vs. technological), consumer mindfulness, and

**TABLE 3** Study 1: Results of the mediation model (during a lockdown period).

Mediator variable models	M1: Pleasure		M2: Meaning	
	b	t	b	t
X: Natural vs. technological experience	-0.21	-0.250*	-0.33	-0.337**
C1: Gender	-0.12	-0.149	0.00	0.01
C2: Age	0.05	0.74	0.03	0.42
C3: Income	-0.06	-0.58	-0.07	-0.59
C4: Positive-negative experience	-0.09	-2.28*	-0.11	-2.21*
C5: Individual-collective experience	-0.07	-0.145	0.11	1.89
Outcome variable model	Y: Life satisfaction ( $R^2 = 0.22$ )			
	b	t		
X: Natural vs. technological experience		0.14	1.47	
M <sub>1</sub> : Pleasure		0.31	3.35**	
M <sub>2</sub> : Meaning		0.28	3.55**	
C1: Gender		-0.03	-0.28	
C2: Age		-0.08	-0.115	
C3: Income		0.20	1.80	
C4: Positive-negative experience		0.00	0.04	
C5: Individual-collective experience		-0.07	-0.122	
Indirect effects influencing life satisfaction	Effect	LLCI	ULCI	
Pleasure	-0.07	-0.14	-0.01	
Meaning	-0.09	-0.20	-0.01	

Note: The continuous variables are mean-centered for the analysis. Abbreviations: C, control variable; LLCI, lower limit confidence interval; M, mediator; ULCI, upper limit confidence interval; X, independent variable; Y, dependent variable.

\*If  $p < 0.05$ .

\*\*If  $p < 0.001$ .

fatigue in terms of consumer well-being (i.e., H2 and H3). Like Study 1, Study 2 was conducted in a lockdown period context. The respondents were asked to answer items that measured their mindfulness and fatigue. Participants were then instructed to briefly describe one of their consumption experiences from the previous 3 months. This prompt facilitated the recall of useful elements for correct and accurate item answers. The participants were then asked to reflect on the nature of the experience they reported (natural vs. technological) as well as their happiness and life satisfaction following that experience. The independent, moderating, mediating, and dependent variables were measured in addition to the participants' perceptions of the characteristics of the experience. The valence and the individual-collective nature of the experience were measured using the same tools and processes described in Study 1. Experiential stimulations were added and measured using items that assessed

sensory, affective, cognitive, and behavioral stimulation (Brakus et al., 2009). Participants' demographic characteristics were also recorded. Upon finishing the questionnaire, respondents were debriefed and thanked.

## 5.2 | The respondents

The survey was administered via a market research agency (Qualtrics) to a sample of 220 UK consumers in March 2021, a national COVID-19 lockdown period (<https://www.instituteforgovernment.org.uk/sites/default/files/timeline-lockdown-web.pdf>). Only the participants who correctly responded to the attention check in the questionnaire were retained; seven respondents were excluded for failing the attention check. Therefore, the final sample comprised 213 respondents. The sample size was sufficient as determined by a power analysis calculated using G\*power. The power was 99% with a medium effect size and a 5% alpha margin of error. The sample's characteristics are detailed in Table 2.

## 5.3 | Measuring instruments

All variables were measured on 7-point Likert scales. To measure the consumer mindfulness, Walach et al. (2006) scale was used. The respondents expressed their level of agreement for each of the 14 items of the scale (e.g., "When I notice an absence of mind, I gently return to the experience of the here and now"; Cronbach's  $\alpha = 0.86$ ;  $M = 4.14$ ,  $SD = 1.02$ ). The factor analysis demonstrated that the items loaded on one factor had loadings ranging from 0.65 to 0.76. Consumer fatigue was measured using Michielsen et al.'s (2003) scale; respondents expressed their level of agreement with each of the 10 scale items (e.g., "I am bothered by fatigue"; Cronbach's  $\alpha = 0.78$ ;  $M = 4.93$ ,  $SD = 1.16$ ). The factor analysis demonstrated that the items loaded on one factor had loadings ranging from 0.62 to 0.84. The nature of the experience was measured by asking the respondents to evaluate how they perceived the experience on a semantic differential scale, with natural and technological acting as scale endpoints ( $M = 3.16$ ,  $SD = 1.98$ ). The meaning, pleasure, and life satisfaction that were connected to the experience were measured by the same methods described in Study 1. The factor analysis demonstrated that the items loaded on different factors, with the loadings ranging from 0.60 to 0.75 for pleasure (Cronbach's  $\alpha = 0.79$ ;  $M = 4.80$ ,  $SD = 1.28$ ), 0.63 to 0.89 for meaning (Cronbach's  $\alpha = 0.85$ ;  $M = 4.99$ ,  $SD = 1.29$ ), and 0.83 to 0.91 for life satisfaction (Cronbach's  $\alpha = 0.92$ ;  $M = 4.77$ ,  $SD = 1.42$ ).

A CFA considering the focal variables of the proposed model was run using SEM (LISREL; Jöreskog & Sörbom, 1996) to verify the psychometric characteristics of the measures. The fit of the model was adequate (Bagozzi & Yi, 2012):  $\chi^2(62) = 99.61$ ; CFI = 0.99; NNFI = 0.98; RMSEA = 0.05; SRMR = 0.05. All of the factor loadings were high and significant, confirming the convergent validity of the measures. The  $\chi^2$  tests comparing the model without constraints and

the model with a parameter equaling two variables at a time were significant. Therefore, the model with more freely estimated parameters fit the data better than alternative models (Hair et al., 2005), and the discriminant validity of the variables was assessed. The synthetic indices, which summarized the variables, were then calculated.

The respondents rated the valence (positive or negative;  $M = 2.56$ ;  $SD = 1.88$ ) and the social nature (individual or collective;  $M = 3.29$ ;  $SD = 2.02$ ) of their experiences on 7-point semantic differential scales. Participants then rated their level of agreement with the items measuring the characteristics of the experience (sensory stimulation:  $M = 5.31$ ,  $SD = 1.30$ ; affective stimulation:  $M = 5.47$ ,  $SD = 1.20$ ; cognitive stimulation:  $M = 5.54$ ,  $SD = 1.25$ ; behavioral stimulation:  $M = 5.05$ ,  $SD = 1.56$ ). In combination with the respondents' demographic characteristics, these variables were inserted as controls in the analysis.

## 5.4 | Results

To test the hypotheses, the PROCESS Model 11 (Hayes, 2022) was used to compute the conditional indirect effects. Table 4 presents the results, demonstrating the boundary conditions of the moderation mechanisms that influence pleasure and meaning and, subsequently, the role of these two dimensions of happiness in driving life satisfaction.

In the mediator variable models, experience type and mindfulness, interacted significantly to influence pleasure ( $b = 0.18$ ,  $p < 0.01$ ; CI = 0.05; 0.31); consumer fatigue demonstrated only a marginally significant effect on pleasure. However, experience type, mindfulness, and consumer fatigue interacted significantly to influence meaning ( $b = -0.22$ ,  $p < 0.05$ ; CI = -0.41; -0.03). In the outcome variable model, pleasure ( $b = 0.44$ ,  $p < 0.001$ ; CI = 0.28; 0.61) and meaning ( $b = 0.21$ ,  $p < 0.05$ ; CI = 0.05; 0.37) had significant positive impacts on life satisfaction.

These results demonstrate that mindfulness moderates the effect of the type of experience on pleasure (Figure 2a). When respondents reported high levels of mindfulness, the type of experience did not affect their pleasure. Thus, H2b is supported for pleasure. Conversely, when consumers had low mindfulness levels, their pleasure was negatively affected by moving from natural to technological experiences. Accordingly, H2a is supported for pleasure.

The results demonstrate that mindfulness and fatigue interact in moderating the effect of experience type on meaning (Figure 2b). In respondents with high levels of fatigue and high mindfulness, the type of experience did not affect meaning. Participants in this condition demonstrated high meaning levels regardless of the type of experience. However, in respondents with high levels of fatigue and low mindfulness, the type of experience did affect the meaning they derived; meaning was higher in technological experiences.

In respondents with low fatigue levels, the type of experience did not affect the meaning they derived when they had high mindfulness.

**TABLE 4** Study 2: Results of the moderated mediation model (during a lockdown period).

Mediator variable models	M1: Pleasure		M2: Meaning	
	<i>b</i>	<i>t</i>	<i>b</i>	<i>t</i>
X: Natural vs. technological experience	-0.04	-1.08	0.05	1.32
W: Mindfulness	0.47	3.19**	0.35	2.33*
X × W	0.18	2.79**	0.03	0.42
Z: Fatigue	0.20	1.70 <sup>†</sup>	0.04	0.31
X × Z	0.02	0.35	0.10	1.69 <sup>†</sup>
W × Z	-0.02	-0.11	0.29	1.51
X × W × Z	-0.05	-0.54	-0.22	-2.26*
C1: Gender	-0.04	-0.24	-0.03	-0.19
C2: Age	-0.01	-2.09*	-0.01	-1.42
C3: Income	-0.08	-0.94	-0.03	-0.30
C4: Positive-negative experience	-0.23	-6.00***	-0.16	-4.23***
C5: Individual-collective experience	0.10	2.89**	0.18	5.25***
C6: Sensory stimulation	0.37	5.55***	0.17	2.43*
C7: Affective stimulation	-0.08	-1.09	0.19	2.54*
C8: Cognitive stimulation	0.02	0.26	0.18	2.59*
C9: Behavioral stimulation	0.12	2.74**	0.02	0.36
<b>Outcome variable model</b>	<b>Y: Life satisfaction (R<sup>2</sup> = 0.52)</b>			
	<i>b</i>			<i>t</i>
X: Natural vs. technological experience		-0.00		-0.10
M <sub>1</sub> : Pleasure		0.44		5.45***
M <sub>2</sub> : Meaning		0.21		2.53*
C1: Gender		0.05		0.31
C2: Age		-0.00		-0.32
C3: Income		0.03		0.33
C4: Positive-negative experience		-0.17		-3.93***
C5: Individual-collective experience		0.01		0.14
C6: Sensory stimulation		-0.04		-0.50
C7: Affective stimulation		0.04		0.56
C8: Cognitive stimulation		0.09		1.23
C9: Behavioral stimulation		0.01		0.21
<b>Conditional indirect effects influencing life satisfaction</b>				
<b>X-Natural vs. technological experience → M<sub>1</sub>-Pleasure → Y-Life satisfaction</b>				
<b>Mindfulness</b>	<b>Effect</b>		<b>LLCI</b>	<b>ULCI</b>
Low	-0.13		-0.24	-0.03
Mid	-0.03		-0.10	0.05
High	0.05		-0.03	0.14
<b>X-Natural vs. technological experience → M<sub>2</sub>-Meaning → Y-Life satisfaction</b>				
<b>Mindfulness</b>	<b>Fatigue</b>	<b>Effect</b>	<b>LLCI</b>	<b>ULCI</b>
Low mindfulness	Low fatigue levels	-0.02	-0.06	-0.001
	Mid fatigue levels	0.00	-0.02	0.03
	High fatigue levels	0.04	0.01	0.08

**TABLE 4** (Continued)

X—Natural vs. technological experience → M2—Meaning → Y—Life satisfaction				
Mindfulness	Fatigue	Effect	LLCI	ULCI
Mid mindfulness	Low fatigue levels	0.00	−0.02	0.02
	Mid fatigue levels	0.01	−0.01	0.03
	High fatigue levels	0.02	0.00	0.06
High mindfulness	Low fatigue levels	0.01	−0.01	0.04
	Mid fatigue levels	0.01	−0.01	0.04
	High fatigue levels	0.01	−0.02	0.05

Note: The continuous variables are mean-centered for the analysis.

Abbreviations: C, control variable; LLCI, lower limit confidence interval; M, mediator; ULCI, upper limit confidence interval; W, Z, moderators; X, independent variable; Y, dependent variable.

<sup>†</sup>If  $p < 0.10$ .

\*If  $p < 0.05$

\*\*If  $p < 0.01$

\*\*\*If  $p < 0.001$ .

However, in respondents with low mindfulness, the type of experience affected the meaning they derived; specifically, these respondents derived less meaning from the technological experiences. Thus, in terms of meaning, H3b is fully supported: when consumer mindfulness levels are high, the meaning they derive is not affected by their fatigue. H3a is also partially supported: when consumers have low mindfulness levels, the meaning they derive is affected by their fatigue levels, and low fatigue levels are associated with greater meaning relative to high fatigue levels. This applies to natural experiences, as expected, but not to technological experiences.

The experience valence affected the model's three focal variables; the more negative the experience, the less pleasure, meaning, and life satisfaction were derived. In addition, the social nature of the experience positively affected both participants' pleasure and meaning but not life satisfaction. The more the collective experience was, the more pleasure and meaning derived by the respondents. Furthermore, meaning was also affected by sensory, affective, and cognitive stimulations; the stronger the stimulation, the more meaning derived by the respondents. Sensory and behavioral stimulations were also found to positively affect pleasure. The demographic characteristics considered in the analyses did not affect the relevant variables of the model with the exception of age; older respondents experienced less pleasure.

## 6 | STUDY 3

### 6.1 | Research design

To increase the external validity of the findings, the proposed model was analyzed at a period during which there were no lockdowns or other restrictions. In contrast to Studies 1 and 2, the aim of Study 3 was to test the proposed model in a period characterized by unrestricted consumption patterns. In addition, to strengthen the

results and improve robustness, an experimental study was implemented. The respondents were first asked to answer items that measured their mindfulness and fatigue. In opposition to Studies 1 and 2, participants were then randomly assigned to one of the two experimental conditions in which they were asked to describe one of their most recent natural or technological consumption experiences.

The task was described as follows: "We would like you to describe a natural (technological) consumption experience that you lived during the last three months. This can be an experience of any type and any frequency." The participants were asked to describe the specific experience before moving on to the questionnaire, which acted as a recall task. Thus, the independent variable was manipulated. Moderating, mediating, and dependent variables were measured in addition to participants' perceptions of the characteristics of the experience (i.e., positive–negative; individual–collective; sensory, affective, cognitive, and behavioral stimulation) and their demographic characteristics. After finishing the questionnaire, the respondents were debriefed and thanked.

### 6.2 | The respondents

The respondents were recruited via Prolific Academic, a participant recruitment company, and were then asked to complete an online survey hosted by Qualtrics. The survey was administered to a sample of 180 UK consumers in May 2023. Only the questionnaires from the participants who correctly answered the attention checks and the manipulation check (i.e., they correctly remembered the type of experience they were asked to report) were retained, which resulted in 25 respondents being eliminated. Thus, the final sample comprised 155 respondents. The sample size was sufficient according to a post hoc power analysis calculated using G\*power. The power was 99% with a medium effect size and a 5% alpha margin of error. The characteristics of the sample are detailed in Table 2.

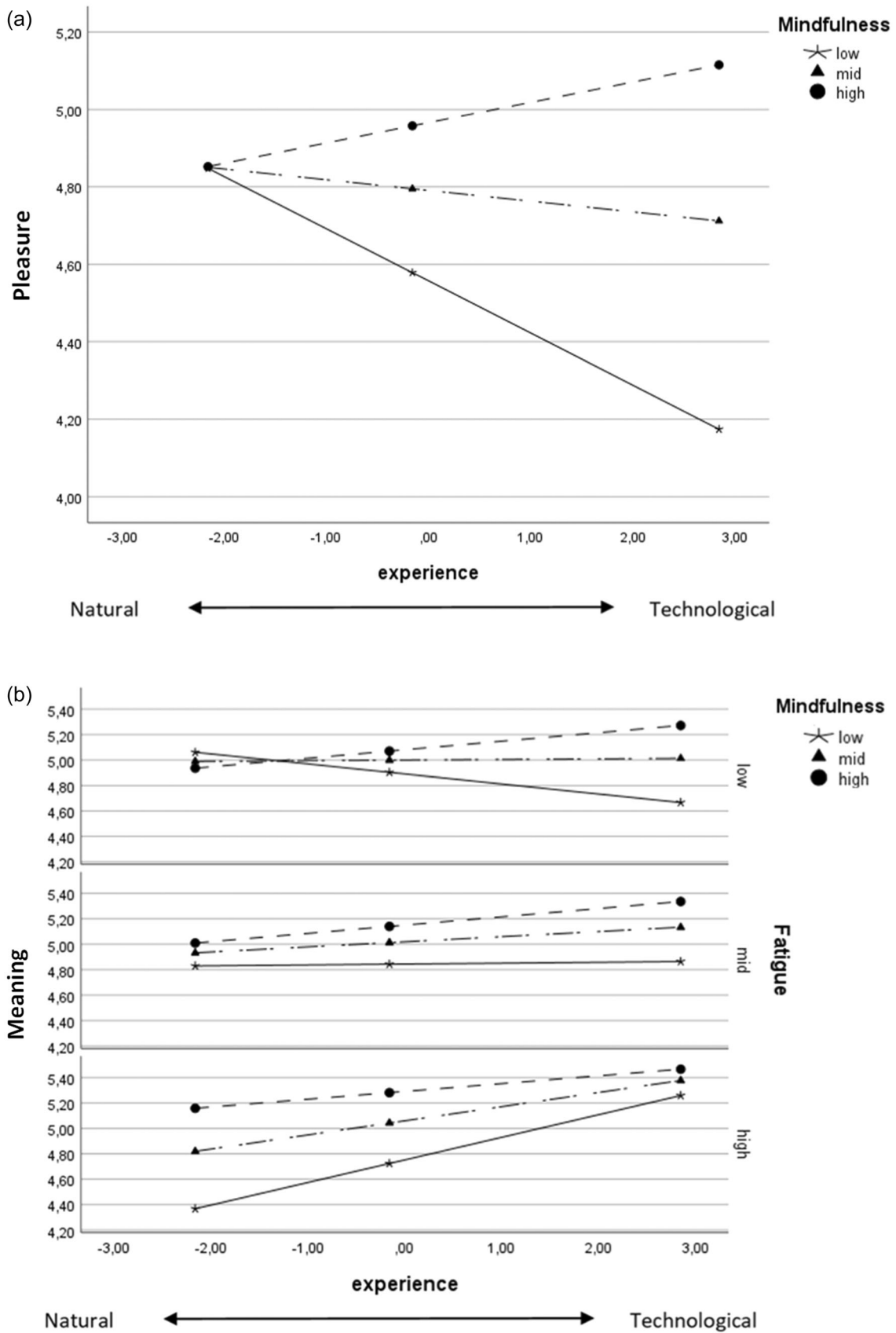


FIGURE 2 Study 2: Interaction effects on pleasure (a) and meaning (b).



### 6.3 | The measuring instruments

Aside from the manipulated variable, the variables were measured on 7-point Likert scales using the same items as those in Study 2: consumer mindfulness (Cronbach's  $\alpha = 0.84$ ; factor loadings: 0.59–0.79;  $M = 4.40$ ,  $SD = 0.92$ ); consumer fatigue (Cronbach's  $\alpha = 0.93$ ; factor loadings: 0.62–0.88;  $M = 3.59$ ,  $SD = 1.05$ ); the meaning connected to the experience (Cronbach's  $\alpha = 0.82$ ; factor loadings: 0.70–0.88;  $M = 3.96$ ,  $SD = 1.34$ ); the pleasure connected to the experience (Cronbach's  $\alpha = 0.76$ ; factor loadings: 0.66–0.88;  $M = 4.75$ ,  $SD = 1.13$ ); and life satisfaction (Cronbach's  $\alpha = 0.94$ ; factor loadings: 0.84–0.94;  $M = 4.39$ ,  $SD = 1.39$ ). A CFA that was run using SEM (LISREL; Jöreskog & Sörbom, 1996) demonstrated an adequate fit of the model (Bagozzi & Yi, 2012):  $\chi^2(62) = 106.67$ ; CFI = 0.98; NNFI = 0.98; RMSEA = 0.06; SRMR = 0.04. All factor loadings were high and significant, as were the  $\chi^2$  tests assessing the discriminant validity of the variables. After this, the synthetic indices were calculated.

The respondents rated the valence (positive or negative;  $M = 1.92$ ;  $SD = 1.34$ ) and the social nature (individual or collective;  $M = 2.86$ ;  $SD = 1.89$ ) of the experience on 7-point semantic differential scales. Following this, they rated their level of agreement with the items measuring the characteristics of the experience (sensory stimulation:  $M = 5.21$ ,  $SD = 1.41$ ; affective stimulation:  $M = 5.20$ ,  $SD = 1.43$ ; cognitive stimulation:  $M = 5.26$ ,  $SD = 1.36$ ; behavioral stimulation:  $M = 5.01$ ,  $SD = 1.60$ ). As in Study 2, these variables were used as controls in the analysis along with the respondents' demographic characteristics.

### 6.4 | Results

The PROCESS Model 11 (Hayes, 2022) was used to analyze the data. Table 5 presents the results. Under the mediator variable model, the type of the experience and mindfulness interacted significantly to influence pleasure ( $b = 0.32$ ,  $p < 0.01$ ; CI = 0.14; 0.50), and mindfulness and consumer fatigue interacted significantly to influence meaning ( $b = 0.29$ ,  $p < 0.05$ ; CI = 0.10; 0.48). The type of the experience did not affect meaning in the latter circumstance. Under the outcome variable model, pleasure ( $b = 0.40$ ,  $p < 0.01$ ; CI = 0.23; 0.57) and meaning ( $b = 0.13$ ,  $p < 0.05$ ; CI = 0.01; 0.25) had significant effects on life satisfaction.

These results demonstrate that mindfulness moderated the effect of the type of experience on pleasure, a relationship also observed in Study 2 (see Figure 3a). As such, these results support H2a and H2b in regard to pleasure. Furthermore, in terms of natural consumption experiences, pleasure was not affected by consumers' level of mindfulness. However, in the technological experience context, higher mindfulness levels were associated with higher levels of pleasure.

The results also show that mindfulness and fatigue, but not the type of experience, interacted to affect meaning (see Figure 3b). In terms of meaning, the data supports H3b; in consumers with high mindfulness levels, meaning was not affected by their fatigue levels.

**TABLE 5** Study 3: Results for the moderated mediation model (period with no restrictions).

Mediator variable models	M1: Pleasure		M2: Meaning	
	b	t	b	t
X: Natural vs. technological experience	0.02	0.30	0.09	0.93
W: Mindfulness	0.12	1.06	0.74	5.06***
X × W	0.32	2.99**	0.18	1.26
Z: Fatigue	-0.11	-1.44	-0.24	-2.42*
X × Z	0.11	1.49	0.01	0.10
W × Z	0.17	1.94	0.29	2.53*
X × W × Z	-0.00	-0.04	-0.01	-0.07
C1: Gender	0.18	1.27	0.34	1.84
C2: Age	0.00	0.56	0.00	0.45
C3: Income	0.00	0.02	-0.00	-0.00
C4: Positive–negative experience	-0.17	-2.69***	-0.16	-1.90
C5: Individual–collective experience	0.03	0.93	0.07	1.40
C6: Sensory stimulation	0.11	1.34	0.21	2.03*
C9: Affective stimulation	0.24	3.02**	0.12	1.15
C7: Cognitive stimulation	0.16	2.32*	0.16	1.81
C8: Behavioral stimulation	-0.05	-0.83	0.15	2.00*
Outcome variable model	Y: Life satisfaction ( $R^2 = 0.49$ )			
	b	t		
X: Natural vs. technological experience	-0.18	-1.91		
M <sub>1</sub> : Pleasure	0.40	3.92***		
M <sub>2</sub> : Meaning	0.13	1.97*		
C1: Gender	0.10	0.59		
C2: Age	0.01	1.26		
C3: Income	0.16	1.26		
C4: Positive–negative experience	-0.20	-2.38***		
C5: Individual–collective experience	0.09	1.87		
C6: Sensory stimulation	-0.10	1.05		
C7: Affective stimulation	0.14	1.51		
C8: Cognitive stimulation	0.03	0.35		
C9: Behavioral stimulation	0.05	0.76		
Conditional indirect effects influencing life satisfaction				
X–Natural vs. technological experience → M1–Pleasure → Y–Life satisfaction				
Mindfulness	Effect	LLCI	ULCI	
Low	-0.68	-0.15	0.01	
Mid	-0.04	-0.04	0.06	
High	0.68	0.02	0.18	
W–Mindfulness → M2–Meaning → Y–Life satisfaction				
Fatigue	Effect	LLCI	ULCI	
Low	0.04	-0.03	0.17	

(Continues)

TABLE 5 (Continued)

W–Mindfulness → M2–Meaning → Y–Life satisfaction			
Fatigue	Effect	LLCI	ULCI
Mid	0.06	–0.06	0.22
High	0.10	0.01	0.31

Note: The continuous variables are mean-centered for the analysis.

Abbreviations: C, control variable; LLCI, lower limit confidence interval; M, mediator; ULCI, upper limit confidence interval; W, Z, moderators; X, independent variable; Y, dependent variable.

\*If  $p < 0.05$

\*\*If  $p < 0.01$

\*\*\*If  $p < 0.001$ .

In respondents with low mindfulness levels, fatigue was negatively associated with meaning, thus supporting H3a. Thus, consumers with high fatigue levels derive more meaning from the experiences if they have higher mindfulness levels. Conversely, when consumers had low fatigue levels, the meaning they derived from the experience was not affected by their mindfulness levels. Lastly, the type of experience had no impact on the aforementioned variables.

The experience valence affected two of the model's focal variables, pleasure and life satisfaction. Specifically, the more negative the experience, the less pleasure and life satisfaction were derived by the consumers. However, the social nature of the experience did not affect the focal variables. In addition, the meaning was positively affected by behavioral and sensory stimulation and affective and cognitive stimulations positively affected pleasure. The demographic characteristics considered in the analyses did not affect the model's relevant variables.

## 7 | DISCUSSION

Study 1 and Study 2 were used to explore the psychological mechanisms underpinning consumer well-being during the COVID-19 lockdown periods in the United Kingdom. The results indicated that consumer well-being was influenced by the type of experience (i.e., natural vs. technological). Study 1 revealed that the type of consumption experience affected consumers' life satisfaction by influencing their happiness, thus supporting H1: both meaning and pleasure were shown to mediate the effect of the type of experience on life satisfaction, thereby substantiating H1a and H1b.

Study 2 demonstrated that consumer well-being was dependent on their levels of mindfulness, thus supporting H2. When consumers had high levels of mindfulness, the type of experience did not affect their reported pleasure and meaning. Conversely, when consumer mindfulness levels were low, the type of experience affected the pleasure and meaning they derived. The amount of pleasure consumers felt was higher in natural experiences compared to technological experiences. This effect was also observed in meaning but only in the conditions in which the respondent also reported low fatigue levels; respondents with high levels of fatigue derived more meaning from their technological experiences. Thus, H3 was mostly supported in terms of meaning.

In addition, Study 2 showed that when consumers had low mindfulness levels, their happiness was related to the type of experience, as it was higher in natural experiences. In addition, in consumers with low mindfulness, pleasure was not affected by their fatigue levels. However, the meaning these consumers derived was influenced by their fatigue levels; consumers with high levels of fatigue derived more meaning from technological experiences.

In contrast with Studies 1 and 2, Study 3 explored consumer well-being during a non-lockdown period (i.e., a period with unrestricted consumption patterns), thus increasing the external validity of the research. The findings supported the results found in Study 2 and better highlighted the role of fatigue in relation to consumer well-being. In particular, the meaning consumers derived from their experiences was affected by mindfulness and fatigue, thereby supporting H3. Indeed, when respondents demonstrated high mindfulness levels, the meaning they derived remained high regardless of their fatigue levels. Conversely, when participants reported low mindfulness levels, the meaning they derived depended on their fatigue levels: the greater the consumer fatigue, the less meaning they derived from the experience. Therefore, the type of experience did not affect the impact of fatigue and mindfulness on meaning. However, consumers' pleasure was affected not by fatigue but primarily by the interaction between mindfulness and the type of experience.

In conclusion, consumers' amount of pleasure was influenced by mindfulness and type of experience in both the lockdown and nonlockdown conditions. In both periods, the pleasure of consumers with low mindfulness levels was influenced by the type of experience; pleasure was higher in natural experiences compared to technological ones. Conversely, meaning had a different developmental path in the two periods analyzed: during the lockdown, consumers who had low mindfulness levels derived more meaning from technological (compared to natural) experiences when they had high levels of fatigue (as demonstrated in Study 2). This trend can be attributed to the opportunities provided by technological experiences, allowing consumers to achieve results and objectives from which they would have been precluded in a lockdown context (e.g., working remotely or staying in contact with friends and relatives through technological tools). In a nonlockdown context, in which there were no such limitations or restrictions, the type of experience no longer interacted with the consumers' individual characteristics to influence meaning (as shown in Study 3). Instead, consumer mindfulness and fatigue levels interacted to affect the meaning they derived. The consumers who had high levels of mindfulness derived more meaning regardless of their fatigue levels, while consumers with low levels of mindfulness were able to achieve this same level of meaning only when they had low fatigue levels.

### 7.1 | Theoretical contributions

This paper contributes to consumer psychology and new technologies literature by identifying the psychological mechanisms and boundary conditions that characterize the relationship between

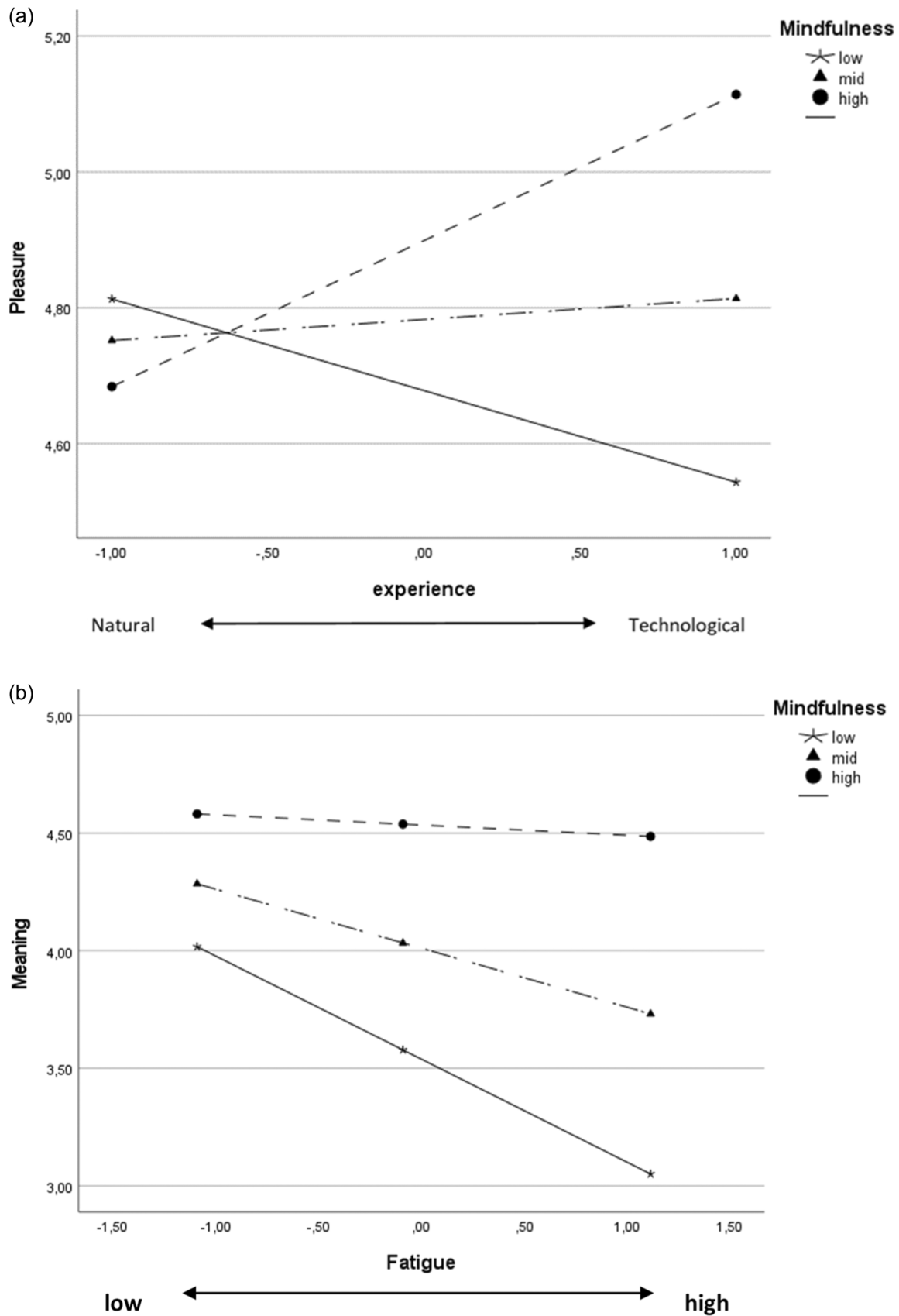


FIGURE 3 Study 3: Interaction effects on pleasure (a) and meaning (b).

experience type (technological and natural) and consumer well-being, considering individual variables (i.e., consumer mindfulness and fatigue). Consumer well-being is defined herein according to happiness and life satisfaction. A broad perspective of happiness, combining both hedonic (i.e., centered on pleasure) and eudaimonic (i.e., centered on meaning) perspectives, was adopted, thus allowing for a comprehensive understanding of this phenomenon.

This paper demonstrates how technological and natural (or “non-technological”) experiences can enhance life satisfaction by positively influencing pleasure and meaning. This paper also explores the roles of mindfulness and, to a certain extent, fatigue in moderating this relationship. Consumers with high levels of mindfulness can derive pleasure and meaning from consumption independently of the experiential context (natural or technological). Thus, high mindfulness levels are associated with consumers deriving happiness and, consequently, life satisfaction in both types of experiences; mindfulness allows consumers to stay balanced, mitigating the potentially negative effects linked to consumption in both new technologies (e.g., addition; see Sherer & Levounis, 2022) and natural settings (e.g., feelings of frustration and despair; see Olsen, 2022).

In contrast, consumers with low levels of mindfulness may be unequipped to protect themselves against the potentially detrimental effects of nature and new technologies. However, low mindfulness consumers may derive more happiness and life satisfaction from experiences that are predominantly natural due to the restorative properties of being in nature (e.g., Chang et al., 2020). With one exception, this effect was found in all conditions in which consumers had low mindfulness levels. Specifically, this exception was found in a condition related to meaning during the lockdown period: consumers with simultaneous low mindfulness and high fatigue levels found more meaning in technological consumption experiences than in natural ones. This unexpected finding could be due to the phenomenon of new technologies helping consumers in the specific, unique context of the COVID-19 pandemic; these technologies allowed the consumers to maintain parts of themselves (e.g., “work-related self,” “parent-self,” etc.; Belk, 2013) amid a global pandemic by enabling them to engage in activities from which they derived meaning. Happiness as meaning is also linked to higher levels of worry, stress, and anxiety (Baumeister et al., 2013).

In post-lockdown conditions, however, consumers' happiness was affected differently than in the lockdown context. During the postlockdown period, the eudaimonic dimension of happiness (meaning) was affected by consumer mindfulness and fatigue levels but not by the technological or natural nature of the experience, while the hedonic dimension of happiness (pleasure) was influenced by the type of experience and consumer mindfulness. In other words, in postlockdown conditions, the type of experience only affected consumers' pleasure and not the meaning they derived, with consumers mindfulness playing a central role. However, fatigue did not wield an influence on consumer well-being in this condition, becoming relevant only when meaning was included. These effects can be explained by recalling the nature of each dimension of happiness: pleasure, which is often extemporaneous, is affected by the

type of experience, whereas meaning, which relates to individuals' values and purpose in life, is not impacted by the type of experience but, rather, how this experience is lived (i.e., through practicing mindfulness).

## 7.2 | Managerial implications

The present work emphasizes the role of technological and natural settings in shaping consumption experiences that support consumer well-being, highlighting the importance of mindfulness, specifically, in protecting consumers against the potential negative effects associated with consumption. Consumers have dramatically changed since the pandemic (Charm et al., 2020); today, consumers are increasingly aware of elements such as shared values, empathy, and the societal and environmental impacts of their consumption experiences. Additionally, after devoting the pandemic years to the prioritization of public health and safety over their own needs, consumers are eager to once again focus on themselves, a phenomenon resulting in many consumers embracing new consumption routines and giving prominence to their well-being (Hancocks, 2022). This shift reflects a mindful approach to consumption. Therefore, promoting consumer mindfulness (i.e., supporting the development and/or reinforcement of a mindful state) may help consumers to develop a more satisfying, pleasant, and meaningful life.

A growing number of companies are engaging in deliberate efforts to increase their customer mindfulness. For example, among companies that decided to not participate in Black Friday (Morgan, 2022), the beauty company Deciem suggested that their customers take a “moment of nothingness” instead of participating in Black Friday in an effort to combat hyperconsumerism and foster a mindful approach to consumption. Similarly, the Tata Consumer Products campaign for its Tata Sampann Yumside range of ready-to-eat and ready-to-cook products encouraged people to embrace the happiness that accompanies each meal, urging individuals to slow down, relish their food, and cherish meaningful moments (MN4U Bureau, 2023). Likewise, Hey Nutrition, a supplement brand, encouraged consumers to elevate their mindfulness through its products and the way they relate to them with the “genius mindfulness” product echoing this by claiming to help consumers control stress and increase their mindfulness (Hancocks, 2022).

The pandemic has caused uncertainty, stress, and major life shifts. It has also expedited the mass adoption of technology in consumption, resulting in concerns about how increased usage of these technologies can negatively impact consumer well-being. Companies must identify effective ways to protect consumer well-being, dialoguing with consumers, and creating opportunities for consumers to have mindful and relaxing consumption experiences. As an example, consider the vitamin brand Ritual, which capitalized on the technological trend with its evocative brand name, committing to making products easy to find through digital means (Hancocks, 2022), and making the supply chain of its products visible. Ritual answered the pleas of many consumers for companies to be more transparent

about their products; Ritual informs consumers (e.g., by disclosing ingredients and sources) thereby mitigating their worries about the products they consume, thus promoting mindful and stressless consumption.

### 7.3 | Limitations and future research

This study focused on how natural and technological experiences affect consumer well-being. Although interesting results emerged, several limitations and opportunities for future research should be mentioned. First, the data collection period for Studies 1 and 2 occurred during COVID-19 lockdown periods. While this allowed for reliable information to be collected—bridging the gap between technological and natural experiences that characterized many consumers' experiences before the pandemic—it may have partially influenced the respondents' perceptions and evaluations. This critical point was addressed in Study 3, which was conducted in a period in which there were no restrictions, thus strengthening the robustness of the results. Future research should corroborate the findings by further testing the model over the next few years, validating the trends identified herein, or evolving them further.

Second, the role of mindfulness and fatigue in consumer well-being warrants further investigation. While the positive influence of mindfulness seems clear and consistent across studies, it could be further examined; future research should consider the differential effects of its specific components (Rau & Williams, 2016). Conversely, the role of consumers' fatigue evolved between the lockdown periods and unrestricted consumption periods. The influence of fatigue on well-being appeared to be more salient during the lockdown periods, interacting with both the type of experience and consumer mindfulness. This pattern can be explained by consumers' reports of feeling overwhelmed and suffering from high fatigue levels during the pandemic (Auxier & Silverglate, 2021). This phenomenon may have contributed to fatigue demonstrating greater influence in stressful contexts. In summary, the roles played by consumer fatigue and their individual characteristics deserve further specific investigation.

Finally, the samples included in this paper comprised consumers who were representative of the United Kingdom in terms of age, gender, and geographic area of residence. The samples included respondents who did not necessarily have predominantly nature-based or technologically advanced consumption experiences, but rather everyday consumption experiences which featured a blend of natural and technological elements. As such, future research should employ purposive sampling to investigate technological consumption experiences based on the use of more advanced technologies, as well as natural consumption experiences that represent a stronger link with nature.

### CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

### DATA AVAILABILITY STATEMENT

The research data is available by the authors upon request.

### ETHICS STATEMENT

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The identity of respondents was completely anonymous. Informed consent was obtained from all individual participants included in the study.

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## APPENDIX A: THE QUALITATIVE ANALYSIS OF NATURAL AND TECHNOLOGICAL EXPERIENCES

### The content of the natural and technological consumption experiences

Overall, 110 descriptions of natural experiences and 86 descriptions of technological experiences were collected. The participants' descriptions of their consumption experiences were analyzed by two experts. After individually evaluating the descriptions and identifying an initial set of emergent themes, the experts agreed on the list of themes and subthemes. This list was then used as a coding scheme in the subsequent analysis in which the participants' descriptions were categorized into themes and subthemes. This analysis had an inter-rater agreement of 88.8%, which is considered satisfactory (Kassarjian, 1977). The results are reported in Table A1.

Several contexts present in both types of consumption experiences emerged from the consumers' descriptions, although some differences were also present. Natural experiences were centered on the inner self (22.7%), self and others (17.3%), functional activities (17.3%), self and nature (12.7%), recreational activities (7.3%), food-related activities (6.4%), physical activities (6.4%), socially active self (5.5%), intellectual activities (2.7%), and hardship (1.8%). The technological experiences involved self and others (21.1%), functional activities (12/8%), physical activities (12.8%), inner self (12.8%), intellectual activities (11.6%), recreational activities (8.1%), food-related activities (5.8%), hardship (4.7%), socially active self (3.5%), self and nature (3.5%), and other (2.3%).

### The valence of the natural and technological consumption experiences

The natural and technological consumption experiences were analyzed in terms of their valence, with the natural experiences being rated more positively ( $t(187) = -5.58, p < 0.01$ ; Table A2). The consumers' descriptions were then coded by two experts to determine the rationale behind these ratings. The experts identified a set of emergent themes that were later used to code the descriptions (Table A3). The interrater agreement of 82.3% was



**TABLE A1** Description of the natural and technological consumption experiences.

	Natural consumption experiences		Technological consumption experiences	
	N	%	N	%
<i>Self and others</i>	19	17.3	19	22.1
Neighbor relations	5	4.6	1	1.2
Family relations	8	7.3	11	12.8
Romantic love	3	2.7	3	3.5
Social relations	3	2.7	4	4.6
<i>Self and nature</i>	14	12.7	3	3.5
Gardening	6	5.5	0	0
Natural world	4	3.6	0	0
Walking or exploring	4	3.6	3	3.5
<i>Food-related</i>	7	6.4	5	5.8
Cooking	2	1.8	4	4.6
Healthy eating	5	4.6	1	1.2
<i>Inner self</i>	25	22.7	11	12.8
Self-awareness	10	9.1	3	3.5
Emotions and feelings	7	6.4	3	3.5
Me time	4	3.6	0	0
Relaxing	4	3.6	5	5.8
<i>Socially active self</i>	6	5.5	3	3.5
Antiracial	1	0.9	1	1.2
Altruism	5	4.6	2	2.3
<i>Physical activities</i>	7	6.4	11	12.8
Physical exercise	7	6.4	11	12.8
<i>Hardship</i>	2	1.8	4	4.7
Death and mourning	1	0.9	1	1.2
Illness or hospitalization	1	0.9	2	2.3
Antisocial behavior	0	0	1	1.2
<i>Functional activities</i>	19	17.2	11	12.8
Working from home	11	10.0	6	7.0
Saving time and money	2	1.8	3	3.5
Self-organization	2	1.8	0	0.0
Shopping	4	3.6	2	2.3
<i>Intellectual activities</i>	3	2.7	10	11.6
Learning new skills	2	1.8	8	9.3
Reflecting	1	0.9	2	2.3
<i>Recreational activities</i>	8	7.3	7	8.1
Media consumption	3	2.7	3	3.5
Hobbies	0	0	2	2.3
Arts and crafts	5	4.6	2	2.3

**TABLE A1** (Continued)

	Natural consumption experiences		Technological consumption experiences	
	N	%	N	%
Other	0	0	2	2.3
Total	110	100	86	100

**TABLE A2** The descriptive statistics of the natural and technological consumption experiences.

	Type of consumption experience	M	SD
		Positive-negative (7-point semantic differential scale; 1 = positive to 7 = negative)	Natural
	Technological	2.62	1.79
Individual-collective (7-point semantic differential scale; 1 = individual to 7 = collective)	Natural	3.11	2.34
	Technological	4.41	1.95

considered satisfactory. The details of the analysis as well as the explanatory extracts of the experiences are available upon request.

#### The social nature of the natural and technological consumption experiences

The natural and technological experiences were analyzed in terms of their individual versus collective nature as perceived by the participants. The two groups were different regarding the extent to which the experience reported was considered individual or collective ( $t(187) = -4.02, p < 0.01$ ), whereby the natural experiences were judged as more individual than the technological experiences (Table A2). The experts agreed on a set of individual- and collective-related categories that were used to code the descriptions of the consumption experiences detailed by the participants, with these descriptions being independently coded. Each description was therefore classified as inward self-oriented (i.e., focused on the participants themselves, their reflections, feelings, emotions, etc.), outward self-oriented (i.e., centered on the participants in relation to an external context), relating to known others (e.g., family, neighbors, etc.), or relating to general others (i.e., people). The inter-rater agreement was 90.8%, which was considered satisfactory (Kassarjian, 1977). The results of the analysis are reported in Table A4. The details of the analysis and the explanatory extracts of the experiences are available upon request.

#### The levels of experiential stimulation in the natural and technological consumption experiences

The natural and technological consumption experiences were analyzed in terms of their level of experiential stimulation (i.e., sensory, affective, cognitive, and behavioral) perceived by the participants. The two experts coded each description individually by focusing on each

**TABLE A3** The valence of the natural and technological consumption experiences.

	Natural consumption experiences			Technological consumption experiences		
	Positive, N (%)	Not positive nor negative, N (%)	Negative, N (%)	Positive, N (%)	Not positive nor negative, N (%)	Negative, N (%)
Accepting oneself	3 (3.4%)	1 (12.5%)	0	0	0	0
Being creative	5 (5.6%)	0	0	4 (6.6%)	0	0
Being more efficient	10 (11.2%)	1 (12.5%)	1 (7.6%)	7 (11.5%)	0	0
Connecting with others	17 (19.1%)	0	0	9 (14.8%)	0	0
Dealing with change	4 (4.5%)	2 (25.0%)	4 (30.8%)	7 (11.5%)	6 (46.1%)	4 (33.3%)
Dealing with negative events	0	0	4 (30.8%)	0	0	4 (33.3%)
Enjoying nature	9 (10.1%)	0	0	0	0	0
Enjoying a slow and simple life	7 (7.9%)	0	0	7 (11.5%)	0	0
Entertaining oneself	0	0	0	2 (3.2%)	1 (7.7%)	0
Feeling negative emotions	0	1 (12.5%)	4 (30.8%)	0	0	3 (25.0%)
Finding freedom	4 (4.5%)	0	0	0	0	0
Living a healthier lifestyle	18 (20.2%)	0	0	12 (19.6%)	0	0
Helping others	8 (9.0%)	0	0	4 (6.6%)	2 (15.4%)	0
Keeping safe	0	1 (12.5%)	0	0	1 (7.7%)	1 (8.4%)
Pursuing personal growth	4 (4.5%)	0	0	8 (13.1%)	2 (15.4%)	0
Shielding oneself from negativity	0	2 (25.0%)	0	0	0	0
Other	0	0	0	1 (1.6%)	1 (7.7%)	0
Total	89 (100%)	8 (100%)	13 (100%)	61 (100%)	13 (100%)	12 (100%)

Note: The responses were rated on a 7-point positive–negative semantic differential scale (ranging from 1 = positive to 7 = negative). The experiences rated as 1, 2, or 3 by the participants were reported as positive, those rated as 4 were reported as neither positive nor negative, and those rated as 5, 6, or 7 were reported as negative.

**TABLE A4** The social nature of the natural and technological consumption experiences.

	Natural consumption experience			Technological consumption experiences		
	Individual, N (%)	Not individual or collective, N (%)	Collective, N (%)	Individual, N (%)	Not individual or collective, N (%)	Collective, N (%)
Inward self-oriented	21 (32.8%)	4 (26.7%)	4 (12.9%)	12 (26.1%)	5 (29.4%)	4 (17.4%)
Outward self-oriented	28 (43.8%)	6 (40.0%)	5 (16.1%)	22 (47.8%)	6 (35.3%)	3 (13.0%)
Relating to knowing others	13 (20.3%)	4 (26.7%)	10 (32.3%)	8 (17.4%)	5 (29.4%)	14 (60.9%)
Relating to general others	2 (3.1%)	1 (6.6%)	12 (38.7%)	4 (8.7%)	1 (5.9%)	2 (8.7%)
Total	64 (100%)	15 (100%)	31 (100%)	46 (100%)	17 (100%)	23 (100%)

Note: The responses were rated on a 7-point individual–collective semantic differential scale (ranging from 1 = individual to 7 = collective). The experiences that were rated as 1, 2, or 3 were reported as individual, the experiences rated as 4 were reported as neither individual nor collective, and the experiences rated as 5, 6, or 7 were reported as collective.

experiential component (0 = not mentioned by the participant, 1 = mentioned by the participant), and it had an interrater reliability of 85.4%. Examining what respondents spontaneously recalled was extremely important for further understanding these experiences. The results of the coding analysis are reported in Table A5.

The majority of the respondents spontaneously mentioned one or two of the experiential components. Furthermore, in natural experiences, more of the respondents were able to identify more than two experiential components (see higher percentages for three [11.8% vs. 7%] and four [1.8% vs. 0%] experiential components).

**TABLE A5** The experiential stimulation for the natural and technological consumption experiences.

	The number of experiential components present in the consumers' descriptions							
	1		2		3		4	
	N	%	N	%	N	%	N	%
Natural consumption experiences	55	50	40	36.4	13	11.8	2	1.8
Technological consumption experiences	47	54.7	33	38.3	6	7.0	0	0

**TABLE A6** The experiential stimulation for the natural and technological consumption experiences.

	The frequency of experiential components in the consumers' descriptions			
	Natural experiences (N = 110)		Technological experiences (N = 86)	
	N	Proportion (%)	N	Proportion (%)
Sensorial component	26	23.6	10	11.6
Affective component	50	45.5	35	40.7
Intellectual component	31	28.2	26	30.2
Behavioral component	75	68.2	60	69.8
Total experiential components	182	-	131	-

Sensory aspects were mentioned in 26 out of 110 descriptions (23.6%) of natural experiences and 10 out of 86 descriptions (11.6%) of technological experiences (Table A6). Affective stimulation was present in 50 descriptions (45.5%) of natural experiences and 35 descriptions (40.7%) of technological experiences. Intellectual stimulation was indicated in 31 descriptions (28.2%) of natural experiences and 26 descriptions (30.2%) of technological experiences. Behavioral stimulation was found in 75 descriptions (68.2%) of natural experiences and in 60 descriptions (69.8%) of technological experiences. The details of the analysis and the explanatory extracts of the experiences are available upon request.

The analysis demonstrates that both types of experiences occurred in a variety of consumption contexts, although natural experiences tended to be more related to the natural world and the inner self, whilst technological experiences tended to be more intellectual. Both types of consumption experiences were typically perceived as positive, with natural experiences being perceived as more positive than technological ones due to the higher number of

benefits perceived by the participants. Natural experiences were perceived as rich and stimulating, while technological experiences were mainly viewed as an opportunity to be or do better. Both types of consumption experiences were perceived as more individual than collective in nature, which could be due to the UK's highly individualistic culture. However, both were also perceived as collective in nature at times: natural experiences tended to be more related to general groups of people, while technological experiences occurred mainly with people that were already known to the respondents. Natural experiences were also able to more strongly stimulate the respondents' senses and emotions, and they were perceived as more involving and engaging by the respondents. This can be explained by: (a) the sample used, which included people of different ages and backgrounds; and (b) the technology reported mainly including traditional devices (e.g., television, standard video game consoles, fitness-related devices, devices for speaking with people), while more advanced devices were not frequently reported.