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Revealing the double-edged sword: Introducing the Technology and Consumer Well-being Paradox Model

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Abstract

While discourse on technology and consumer well-being has been at the forefront of academics' and practitioners' agendas, the theoretical understanding of the complex interplay between technology and consumer well-being has remained tenuous. To address this gap in our understanding of technology's influence on consumer well-being, this research provides a comprehensive literature review of recent articles published in *Psychology & Marketing*. Findings indicate a double-edged sword where technology has the propensity to not only foster a state of negative well-being but can also enhance consumers' well-being. Additionally, a technology well-being paradox is uncovered whereby technology is used to manage the negative effects of technology use. Accordingly, we introduce the *Technology and Consumer Well-being Paradox Model* that incorporates technology's propensity to enhance, diminish, and manage eudaimonic and hedonic consumer well-being. Furthermore, the influence of the purpose of technology use and changes to consumer well-being over time with technology use are also considered. Finally, we provide pertinent avenues for future research to further understanding on the technology and consumer well-being paradox.

KEYWORDS

consumer well-being, eudaimonic well-being, hedonic well-being, technology usage

1 | INTRODUCTION

Technology is now fundamentally embedded in all aspects of a consumer's everyday life. For many consumers, technology facilitates human flourishing, yet for others, it can stifle such flourishing (Buchi, 2021). Year after year, we see a continual increase in technology use for social, pleasure, and work activities, and growth into categories that previously had limited technology presence (Cruz-Cardenas et al., 2021). Beyond simple technology use, recent reports outline that the worldwide average amount of time individuals spend using the Internet has grown to 6 h and 41 min

per day (WeAreSocial, 2023). Consequently, not only is consumers' technology use increasing but their *Internet-connected* technology use is increasing too, from engaging with smartphones, applications, wearable technologies (e.g., smart watches), voice assistants (in-home and out-of-home), consuming digital media/social media information, overlying augmented reality and utilizing virtual reality in its various forms. As a result, technology has propelled the "always on" consumer (Hollebeek & Belk, 2021).

The interrelationship between technology and consumer well-being has become an increasingly pivotal area of scholarly inquiry given the recent technological advancements we have experienced in

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the general marketplace (Tikkanen et al., 2023) and the aforementioned integral role technology plays in consumers' lives. To date, marketers have mainly focused on encouraging consumers to adopt technology to enhance consumer technology-facilitated engagement and to co-create value between consumers and brands, without too much thought on the implications of this on consumer well-being. The relationship between technology and well-being is characterized by a complex and dynamic interplay, in which technology can act as a double-edged sword by possessing the capability to enhance and decrease well-being.

Unequivocally, technology offers consumers a number of benefits including immediate access to information, convenience and efficiency, enhanced customer support, personalization of communications and products, cost savings, social connectivity, and financial services. Notably, technology often provides instantaneous access to all of these benefits affording consumers instant gratifications. Positive psychology literature outlines that both *hedonic* and *eudaimonic* well-being can be enhanced with such gratifications (Ryff, 2014), manifested, for example, by prompting both pleasure and a greater level of autonomy. Relatedly, the recent innovations in technology to connect with individuals, facilitate relationships and foster a sense of community and belongingness, monitor health information, and gain access to education can all aid individuals in leading better lives (Hylving et al., 2022) and consequently enable human flourishing.

However, the use of technology as a means of enhancing well-being is being somewhat muted, given the growing body of literature surrounding the negative aspects of overusing technology (e.g., Kaur et al., 2021; Roffarello & De Russis, 2023). While positive well-being outcomes can be derived from engagement with technology, non-favorable well-being outcomes can also occur due to the distractions and overwhelming information load caused by technology. A body of literature has outlined that frequent use of smartphones (McLean et al., 2021), social media (Javornik et al., 2022), and the Internet in general (Jeong & Syed, 2024) can have negative interference with consumers' day-to-day activities. Accordingly, given that consumers are exposed to increased media and services through an array of digital channels (e.g., social media, email, SMS, instant messengers, app push notifications), such quantity can have a compounding negative effect on consumers' well-being.

The theory of compensatory Internet use (Kardefelt-Winther, 2014) outlines that people use the Internet and related connected devices (e.g., social media and applications) as an ineffective way of dealing with problems they face in their lives. Thus, as consumers become more reliant on technology as a form of escape (McLean et al., 2021) and to boost well-being on the Internet and engage with it more frequently, such practices can trigger addiction behaviors (Zhao et al., 2023). Consequently, some consumers have turned to *digital self-control tools (DSCTs)* to assist themselves in reducing their interactions and exposure to technology (Roffarello & De Russis, 2023). Such self-control tools (e.g., Forest: Focus for productivity) aim to help consumers stay focused on tasks they wish to complete. DSCTs work by allowing consumers to track usage patterns, and define interventions (e.g., lock-outs and timers) on their

smartphone devices or other online services. Therefore, we enter a technology well-being paradox where technology is used to overcome the negative well-being consequences of technology use.

Subsequently, the relationship between technology and well-being is multifaceted and dynamic. Technology and well-being have become intertwined, contributing to either enhancing well-being, decreasing well-being, or serving as a tool to manage well-being. The manifestation of these three intertwining areas of technology and well-being emphasizes the need for a greater understanding of how both marketers and consumers approach technology and well-being. Thus, we introduce the *Technology and Consumer Well-being Paradox Model*.

In the following sections, we provide an overview of well-being literature rooted in positive psychology and offer a discussion on technology and well-being. Subsequently, we, introduce the Technology and Consumer Well-being Paradox Model, and provide a future research agenda.

2 | THEORETICAL FRAMEWORK

2.1 | Consumer well-being

Consumer well-being is a multifaceted concept encompassing an array of aspects, including a psychological state, emotional balance, social fulfillment, physical health, life goals, and life satisfaction (Sirgy, 2010). However, despite the broad range of dimensions, consumer well-being has been largely studied from a subjective well-being standpoint focusing on a hedonic perspective of well-being (Su et al., 2020) while largely neglecting the eudaimonic perspective (Cai et al., 2020). Accordingly, much consumer well-being research has been unidimensional and, therefore, does not provide a clear and holistic understanding of consumer well-being (Aldossary & McLean, 2023).

From a positive psychology viewpoint, the classical understanding of well-being from ancient Greek times consists of two core dimensions: *hedonia* and *eudaimonia* (Ryan & Deci, 2001). The historical perspective of *hedonia* derives from Aristippus who outlined that people seek pleasure and avoid pain as much as they possibly can. Therefore in well-being literature, *hedonia* is defined as the pleasure element of consumer well-being, relating to pleasure gain and pain avoidance and involves fun, happiness, enjoyment, and positive emotions (Rahmani et al., 2018). On the other hand, *eudaimonia* stems from Aristotle who outlined the realization of human potential and growth to be the ultimate life goal. Accordingly, *eudaimonia* is defined as the meaning-related dimension of well-being and relates to self-actualization, self-growth, and achievement and the degree to which an individual is fully flourishing (Ryan & Deci, 2001; Ryff, 2014). *Eudaimonia* represents an important psychological state in which an individual feels like they have control and mastery over their external environment, have the ability to develop positive relationships with others and have a purpose in life (Ryff, 2014).

The focus on customer pleasure, customer happiness, and customer enjoyment has resulted in well-being studies in marketing, services, and tourism literature focusing on the hedonic perspective of well-being; however, scholars have gradually realized that consumer well-being is beyond these states of hedonia (Cai et al., 2020; Filep & Laing, 2019) and measuring well-being from only a hedonic perspective tells half the story of consumer well-being. Hence, both dimensions of well-being (hedonia and eudaimonia) cover the aforementioned aspects (psychological state, emotional balance, social fulfillment, physical health, life goals, and life satisfaction) of well-being.

While for the purpose of theoretical clarity, we discuss consumer well-being as two separate dimensions, recent literature suggests that further complexity exists as eudaimonia and hedonia are both overlapping and distinct from each other (Rahmani et al., 2018). Thus, there is still a need to understand the similarity and variance between eudaimonia and hedonia simultaneously, for a greater understanding of consumer well-being (Ryan & Deci, 2001). In a technology context, different goals and needs may be fulfilled by different types of technology (e.g., social media, apps, wearables) over different time frames (long term and short term) which may lead to an uplift or decrease in hedonic and/or eudaimonic well-being.

2.2 | Consumer well-being in a technology context

Consumers participate in technology use for a variety of reasons including for social connection with friends, family, other consumers, or brands. In addition, technology usage can be for information seeking, pleasure, relaxation, or completing a specific task (Hollebeek et al., 2024). In general, the consumption of technology involves hedonic or utilitarian considerations (Longoni & Cian, 2020). Hedonic consumption is mainly affect-driven and centered on experiential pleasure and is measured based on the degree to which something is pleasurable rewarding (Botti & McGill, 2011). Utilitarian consumption, on the other hand, is cognitively driven, centered on functional goals, and is measured based on the degree to which something is a means to an end (Botti & McGill, 2011). Most consumer well-being research focuses on hedonic consumption activities, where consumers use technology to meet hedonic well-being needs (Ryan & Deci, 2001). Naturally, utilitarian consumption activities appear to be linked more closely with eudaimonic well-being, where consumers may use technology to achieve a life goal such as learning a new skill. However, such consumption practices in relation to consumer well-being are not as clear-cut as they may seem. For example, consumers may use an online platform to learn how to play a musical instrument as a pleasurable hedonic consumption activity, yet such consumption may have also been a life goal and a sense of achievement boosting eudaimonic well-being. Similarly, consumers may browse online for life-goal items (e.g., a luxury watch) as a form of pleasure relating to both to hedonic and eudaimonic well-being.

Given the array of hedonic and utilitarian activities that consumers can engage in through the use of technology, the effects

(both positive and negative) on well-being elicited by different activities are likely to vary (Ferreira et al., 2021). While there has been research on the negative effects of technology use on well-being (Buchi, 2021; Turel et al., 2019) and the positive effects on well-being (Griffy-Brown et al., 2018), there has been a lack of research in developing our understanding on different technology consumption activities in relation to both hedonic and eudaimonic well-being. For example, there is no clear understanding of the effects of challenging (vs. relaxing) technological consumption activities on consumer well-being or the categorization of different types of activities. Additionally, the results of technology's impact on well-being can differ depending on the measured dependent variable. For example, one study finds negative well-being effects of social media as it operationalises social media use as clicking links and the like button (Shakya & Christakis, 2017). Conversely, others find positive effects because it measures social media as the integration into social life and routines. Therefore, to truly understand the effects of technology on consumer well-being, theoretical understanding is required of the different types of technology activities and their purpose (hedonic and utilitarian) on consumer well-being. More so, in specific fields of study such as tourism (e.g., Aldossary & McLean, 2023; Su et al., 2020), well-being can change over time. As such, understanding the tipping point of technology use transitioning over time from potentially positive effects to negative effects becomes important. Accordingly, one technology in isolation cannot be attributed to developing either positive or negative consumer well-being; the type of activity, the purpose of use, the type of technology and the length of time using technology all contribute to increasing or decreasing consumer well-being—the double-edged sword.

3 | CONCEPTUALIZATION

3.1 | Reconciling the double-edged sword

Based on the previous discussion and review of recent articles published in *Psychology & Marketing* (see Table 1) on technology and consumer well-being, we develop the *Technology and Consumer Well-being Paradox Model* outlined in Figure 1. Specifically, the model depicts the paradox of how technology usage can increase well-being, decrease well-being, and act as a tool to manage well-being.

3.2 | Technology usage

Prior works have examined technology use and consumer well-being in relation to a range of technologies, including social media, holistic technology use, wearable technologies, and artificial intelligence (AI). Specifically, the usage of technology is proposed to either increase or decrease consumer well-being or act as a tool to manage well-being. For example, Yu and Fan (2024) assess the impact of utilizing companion robots to fulfill social needs and identify that feeling of

TABLE 1 Technologies and their influence on consumer well-being.

Authors	Technology	Influence on well-being	Article summary
<i>Social media well-being</i>			
Asante et al. (2024)	Social media	Hedonic	<ul style="list-style-type: none"> The authors explore the factors motivating consumers to interact with brands through live-streaming platforms and their effect on consumers' hedonic well-being. Structural equation modeling and fuzzy-set qualitative comparative analysis are utilized to analyze the data captured from 464 participants who watched live streaming on social media platforms in China. Findings suggest that brand awareness motivation, real-time customer service motivation, consumer-brand relationship quality motivation, and psychological engagement have a positive effect on hedonic well-being. Additionally, brand awareness motivation, convenience motivation, real-time customer service motivation, and consumer-brand relationship motivation all positively influenced psychological engagement. Further analysis through fuzzy-set qualitative analysis confirms the importance of convenience motivation, real-time customer service motivation, consumer-brand relationship quality motivation, and psychological engagement as necessary conditions for hedonic well-being.
Claeys et al. (2024)	Social media	Eudaimonic	<ul style="list-style-type: none"> The authors examine how genuine (vs. nongenuine) visual self-presentations by influencers affect their followers' purchase intention and well-being. Utilizing a sample of 171 female participants, Study 1 suggests that the genuine presentation of social media influencers has a more positive effect on well-being through lower upward comparisons and greater self-esteem. In Study 2, a sample of 154 male and female participants is utilized to verify the findings in Study 1 and to further examine the effect that gender has on the model. Results in Study 2 align with the results for Study 1 for female participants regarding the effect that genuine presentation has on well-being through lower upward comparisons and greater self-esteem, yet the relationships were not significant for males. Study 2 also supports the findings in Study 1 for females regarding purchase intention. Results suggest that although purchase intention increased for males, it was not due to a decrease in upward comparisons or an increase in self-esteem.
Cloarec et al. (2024)	Social media	Eudaimonic	<ul style="list-style-type: none"> The authors explore how happiness with the internet (HWI) influences users' willingness to disclose personal information on social media. Coining the term, transformative privacy calculus, a conceptual model is tested with two studies examining the psychological mechanisms driving information-sharing behaviors on social media and the moderating roles of trust beliefs and information collection concerns. The mediating effect of posting frequency between HWI and information disclosure for personalization is also explored. Study 1, with 633 respondents provides several insights. Results suggest that HWI positively and indirectly affects users' willingness to disclose information for personalization via frequency of social network site (SNS) use. It also leads to improved information quality and better personalized suggestions. Further, results suggest that SNS posting frequency increases consumers' willingness to disclose information for personalization and that higher trust beliefs lead to a greater willingness to disclose information for personalization. Information collection concerns, however, have the propensity to decrease the effect of HWI's effect on SNS posting frequency, and information collection concerns have a negative impact on willingness to disclose information on personalization. Study 2 re-examines the model with 295 participants and substantiates several relationships—except for the moderating effects of trust beliefs and information collection concerns on HWI and SNS posting frequency, and information collection concerns' effect on HWI and SNS posting frequency.
De Keyzer et al. (2024)	Social media	Eudaimonic and hedonic	<ul style="list-style-type: none"> The authors examine how perceived personalization in advertisements on social media affect brand engagement and ad avoidance. Four moderated mediated models are examined with 794 participants in Study 1 where perceived creepiness and perceived relevance were tested as competing mediating variables, and hedonic and eudemonic well-being as moderating variables. Findings from Study 1 suggest that perceived relevance could explain the positive effect of perceived personalization on brand engagement and the negative effect on ad avoidance. Additionally, the findings suggest that perceived creepiness could explain the negative effect of perceived personalization on ad avoidance.

TABLE 1 (Continued)

Authors	Technology	Influence on well-being	Article summary
Honora et al. (2024)	Social media	Eudaimonic	<ul style="list-style-type: none"> • Study 2 with 36 participants explores the perceptions of creepiness and relevance in relation to well-being. Qualitative analysis of Study 2 demonstrates that participants are accustomed to personalized advertisements and scroll to avoid them unless there is relevant or useful content. Additionally, although participants valued relevant and useful ads, they also expressed worry about being watched or tracked and made to feel uncomfortable and a sense of creepiness. • The authors propose an integrated model to examine the bright and dark sides of consumer–human brand relationships that take place in social media. • Study 1 with 266 participants examines the bright side and elicits findings that suggest that human brand attachment improves consumers' daily performance through stress relief, which, in turn, increases life satisfaction. • Study 2 with 483 participants focuses on the dark side with findings that indicate that human brand attachment can cause consumers' daily performance to deteriorate as a result of compulsive human brand consumption on social media and human brand–personal conflict, which has a diminishing effect on life satisfaction. • Studies 3 (431 participants) and 4 (526 participants) build on the initial studies with findings that suggest that strong consumer–human brand relationships can be detrimental to consumers' well-being as the indirect negative impact of human brand attachment on daily performance and life satisfaction can overpower its indirect positive impact. These detrimental effects are moderated by self-regulatory focus.
Marder et al. (2024)	Social media	Eudaimonic	<ul style="list-style-type: none"> • The authors explore professional SNS usage and imposter syndrome in relation to imposter thoughts and well-being. • Findings from Study 1 (216 participants) and Study 2 (288 participants) suggest that professional SNS usage increases self-focused attention and activates imposter thoughts. This results in negative emotions and consumption-related effects. • Two boundary conditions are also explored and suggest that effects are reduced for individuals high in narcissism or work centrality.
Park and Yap (2024)	Social media	Eudaimonic	<ul style="list-style-type: none"> • The authors examine the concept of hikikomori, a severe social withdrawal condition, and its propensity to be mitigated using technology. • A netnographic study based on over 2 years of naturalistic observations of a Hikikomori Escape online community suggests that the following seven types of affordances of technology could facilitate hikikomori's social reintegration into society: anonymous storytelling, meta connectivity, information access for skill growth, peer networking and community building, online coaching, virtual-to-real connectivity, and tech-enabled skill development.
Sokolova et al. (2024)	Social media	Eudaimonic and hedonic	<ul style="list-style-type: none"> • The authors examine home cooking food influencers on Instagram and their ability to influence purchase intention. • Findings from Study 1 (213 participants), suggest that self-efficacy and perceived benefits positively influence imitation intention, ease of recipe, verbal persuasion, and cooking experience were positively related to followers perceived ability to reproduce the recipe at home. Finally, perceived similarity with an influencer had a positive influence on imitation intention. • Study 2 (175 participants) and 3 (120 participants) provide further support to the proposed model by reconfirming relationships and testing additional boundary conditions.
Wilson-Nash and Pavlopoulou (2024)	Social media	Eudaimonic	<ul style="list-style-type: none"> • The authors examine how electronic word-of-mouth (eWOM) around brands, products and services influence social well-being in older consumers. • A 6-month netnography data collection and analysis of eWOM activity from 42,318 posts from 622 threads was conducted. • Findings reveal four types of eWOM among older consumers that foster experiences of well-being—nostalgic, seeking reassurance/advice, providing reassurance/advice, and negotiation.

(Continues)

TABLE 1 (Continued)

Authors	Technology	Influence on well-being	Article summary
<i>Holistic technological consumption and well-being</i>			
Alimamy et al. (2024)	Various	Eudaimonic	<ul style="list-style-type: none"> • Drawing upon Heidegger's philosophy, the authors present a theoretical framework that challenges the notions of value-in-use and introduces the concept of value-in-being. • The fundamental elements of value-in-being are discussed, with emphasis placed on the importance of subjective meaning, context-specific purpose, and dwelling as key priorities for service design and consumer well-being. • Recommendations are offered for organizations including offering more authentic experiences by embracing Heideggerian principles and stressing importance on value-in-being.
Zarantonello et al. (2024)	Various	Eudaimonic and hedonic	<ul style="list-style-type: none"> • The authors explore how technological versus natural experiences in the consumption context contribute to consumer well-being (defined as happiness with its components of pleasure and meaning, and life satisfaction). The authors also examine the effects that individuals' fatigue and mindfulness have on these relationships. • Utilizing a sample of 196 participants, Study 1 tested the mediating role of pleasure and meaning on the relationship between the type of experience (technological vs. natural) and life satisfaction. Results suggest that the type of consumption experience affected consumers' life satisfaction by influencing their happiness. Further, meaning and pleasure had a mediating effect on the type of experience and life satisfaction. • Study 2 utilized 213 participants to understand the interaction effects between consumption experiences (natural vs. technological), consumer mindfulness, and fatigue in terms of consumer well-being. Results suggest that the type of experience did not affect pleasure and meaning when mindfulness was high. Conversely, the type of experience affected the pleasure and meaning derived when mindfulness was low. The amount of pleasure consumers felt was higher in natural experiences compared to technological experiences, with the same effect happening for meaning with conditions where there was low fatigue levels (high levels of fatigue were associated with more meaning from technological experiences). • Study 3, with 155 participants, increased the external validity of the findings of Study 1 and 2 as the first two studies took place during Covid-19 lockdowns and other restrictions. Study 3 did not have such restrictions and provided further support to the first two studies.
<i>Wearable technology and consumer well-being</i>			
Mwangi et al. (2024)	Wearable technologies	Eudaimonic and hedonic	<ul style="list-style-type: none"> • The authors conduct a systematic interdisciplinary review of 23 empirical journal articles from psychology, information technology, and business disciplines to understand the impact of wearable technology on user well-being. • The analysis provides principal conceptualizations of the concept of well-being as well as what the authors determine to be an overemphasis on the adoption and usage of wearables. • The authors offer opportunities for future research within the micro, meso, and macro level conceptualizations of well-being, whilst also employing diverse methodologies.
<i>Artificial intelligence (AI) and consumer well-being</i>			
Marriott and Pitardi (2024)	AI Friendship App	Eudaimonic	<ul style="list-style-type: none"> • Through a mixed-methods approach, the authors investigate the extent that the AI friendship apps enhance users' well-being and the extent they exacerbate issues of using technology for social needs. • Study 1 utilized data from 321 Reddit posts from a community of users of an AI friendship app and 21 interviews. Key themes from Study 1 include: a feeling of being less alone with an AI friend, the AI friend always being there, the AI friend telling one what one wants to hear, and AI friends can be addictive. • Findings from Study 2, with 572 participants, suggest that loneliness (+), fear of judgment (+), ubiquity (-), sentience (+), and warmth (-) all significantly influence users' app addiction. Additionally, relationship with the AI positively influences well-being, with well-being having a positive association with addiction.
Yu and Fan (2024)	Robot	Eudaimonic	<ul style="list-style-type: none"> • The authors seek to understand how to connect humans with robots to fulfill their social needs.

TABLE 1 (Continued)

Authors	Technology	Influence on well-being	Article summary
Zhang et al. (2024)	AI Assistant	Eudaimonic	<ul style="list-style-type: none"> Findings from Studies 1 (190 participants) and 2 (299 participants) suggest that high levels of loneliness negatively affect the propensity to bond with robotic companions. Further, and for those individuals with low to median levels of loneliness, confidence in dealing with loneliness also negatively affects the propensity to bond with robotic companions. Studies 3–6 explore which companion robot products may be more appealing to lonely individuals. Study 3's (157 participants) findings suggest that individuals with high levels of loneliness are more likely to bond with robotic companions with low-dominance traits. Study 4 (225 participants) replicated the results of Study 3 and additionally finds that an adjustment in language style can influence perceptions of the robot's displayed dominance. Study 5 (233 participants) manipulates body posture to explore low and high levels of robot dominance. Results indicate that a perception of high (low) dominance body posture are associated with higher (lower) levels of robot dominance. Study 6 (324 participants) again examines the role of dominance and finds that robot dominance plays key roles in level of loneliness and attitude toward companion robots.
			<ul style="list-style-type: none"> The authors endeavor to understand consumers' experience with medical AI and their decision-making process about using human versus AI for follow-up care. Results from Study 1 (180 participants) suggest that consumers experience a greater sense of well-being after a highly personalized interaction versus a less personalized interaction, regardless of the type of medical provider, yet prefer to revisit a human doctor. This effect is mediated by empathy. Study 2, using neuroimaging through functional magnetic resonance imaging of 22 participants, indicates that the anterior cingulate cortex is more activated in a highly personalized interaction versus a less personalized one, with higher levels of activation associated with willingness to revisit the provider. Additionally, the temporal occipital fusiform cortex demonstrates greater activation when the patient is presented a scenario of visiting a human doctor versus a medical AI, regardless of the type of personalized interaction, with the activation correlated with the patient's willingness to revisit the provider.

loneliness influences the bonding with robots. Overall, lonely individuals are more inclined to utilize this type of technology. Beyond assessing technological usage across different technologies, prior research has also examined the impact of technological versus natural consumption experiences on consumer well-being (Zarantonello et al., 2024). As such, while the effects of technology on well-being are complex and can shift over time depending on the consumer's purpose of usage, understanding its difference compared to natural experiences is also of interest as evident by existing research.

3.3 | Hedonic and eudaimonic well-being

We differentiate between hedonic and eudaimonic well-being as both dimensions can be individually or simultaneously experienced by consumers utilizing technology. Hedonic well-being reflects the pleasurable, fun, and enjoyable elements of using technology. For example, Asante et al. (2024) explore consumer motivations to engage with brands through live-streaming platforms and their subsequent impact on consumer's hedonic well-being. Findings suggest that brand awareness motivation and

psychological engagement, among other variables, enhance hedonic well-being.

Eudaimonic well-being reflects technological experiences allowing the user to enhance human flourishing or attain a life goal, including self-actualization or self-growth. For instance, genuine visual self-presentation by social media influences has a positive effect on eudaimonic well-being and self-esteem (Claeys et al., 2024). Within the context of medical AI, Zhang et al. (2024) determine that high levels of personalization lead to higher levels of eudaimonic well-being no matter if the medical provider is human or AI.

3.4 | The impact of technology usage on well-being

An important consideration is the impact that extended or continuous use of technology can have on well-being. Initially, technologies such as social media, for example, can enhance hedonic well-being by providing immediate pleasure, connection, and entertainment. For instance, Asante et al. (2024) demonstrate that engagement with live-streaming platforms enhances consumers' hedonic well-being through increased brand awareness and real-time interactions,

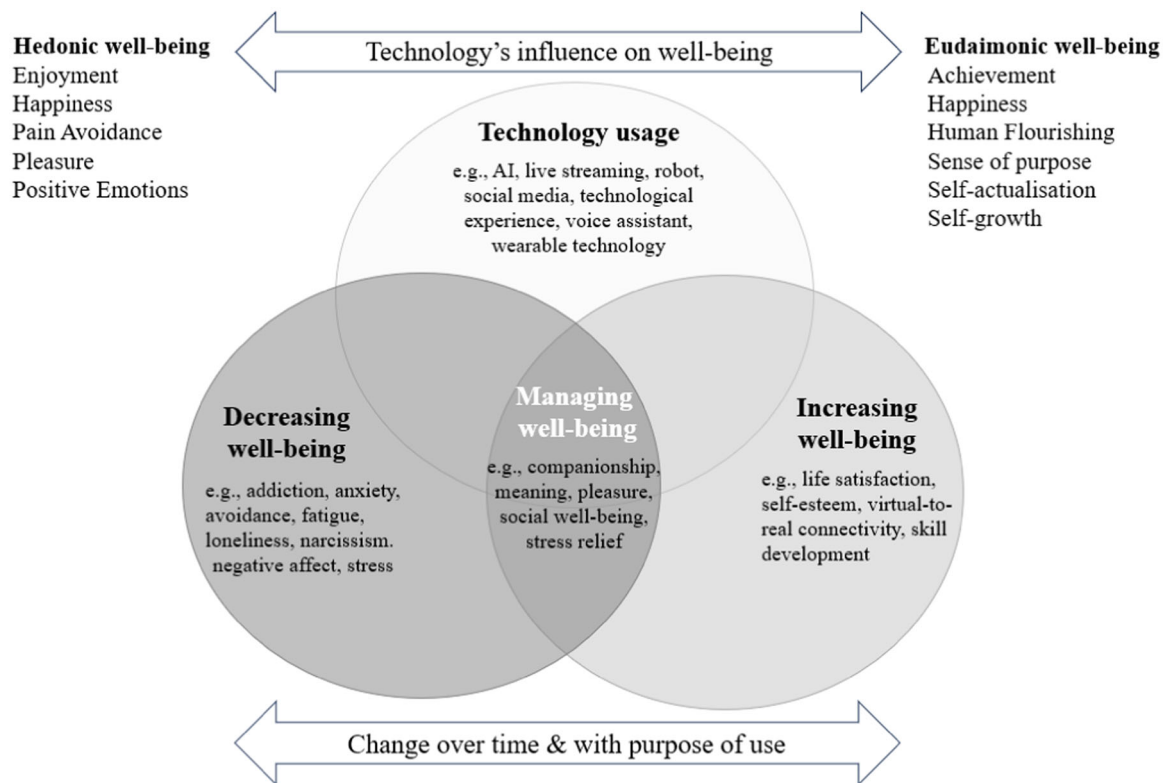


FIGURE 1 The Technology and Consumer Well-being Paradox Model. AI, artificial intelligence.

which foster psychological engagement and consumer–brand relationships. However, over prolonged use, the impact of technology can evolve or even reverse. Cloarec et al. (2024) suggest that initial benefits, such as happiness from Internet use leading to increased social media engagement and information disclosure, can later be overshadowed by concerns over privacy and trust, potentially diminishing well-being. Therefore, this important temporal effect can either diminish well-being or enhance well-being depending on the intended purpose of the technology.

As such, the purpose of technology use becomes more important than the type of technology as technologies can be used for different purposes depending on the consumer's goals and motivations. Therefore, rather than focusing solely on the technology type, we outline the importance of the technology's purpose of use coupled with the type of technology. For instance, wearable technologies can facilitate hedonic well-being by gamifying fitness monitoring or influence eudaimonic well-being by enabling consumers to track health goals. Outlining that a viewpoint on the purpose of technology use rather than only focusing on the type of technology can yield different outcomes. Likewise, AI friendship apps can be used to alleviate loneliness, a fundamental eudaimonic pursuit, yet their use can result in dependency. Alternatively, such apps may be used for hedonic pursuit or a different motivation which could result in a different consumer well-being outcome, thus showcasing that understanding the purpose of use can uncover the complex outcomes of use and uncover the paradoxical use of technology.

Accordingly, while technology offers significant potential to enhance hedonic and eudaimonic well-being, its effects are not universally positive or negative. They vary significantly based on factors such as duration of use, purpose, the nature of the technology, and individual differences in consumers. Understanding these dynamics and the interplay of them is crucial for developing and utilizing technologies that benefit consumer well-being without unintended negative consequences. As such, these three entwined areas of technology and well-being displayed in the Technology and Consumer Well-being Paradox Model highlight the need for additional research to identify of how both marketers and consumers can utilize technology to elicit the desired impact on well-being.

4 | FUTURE RESEARCH AGENDA

As demonstrated by the research presented here, a range of technologies, including AI, social media, wearable technologies, and general technology all have the propensity to positively and negatively influence consumer well-being, while offer the ability to manage well-being, hence the technology and consumer well-being paradox. Additionally, these technologies not only have the ability to influence individual users but groups and communities of users as well, further demonstrating their importance to consumer well-being in society. As such, aligned with our model (Figure 1), future research opportunities related to technology usage and well-being include

three core themes: (1) technology consumption activities and the purpose of technology use, (2) temporal considerations of technology usage, and (3) adoption of alternate theoretical premises to further theoretical understanding of the consumer and technology well-being paradox. Table 2 provides an overview of pertinent research questions related to each of these themes.

4.1 | Theme 1: Technology consumption activities and the purpose of technology use

There is a need to continue to examine technologies that can improve, diminish, or help manage consumer well-being in conjunction with the rapid pace of technological change. Simultaneously, the rate of change and the associated disruptions to society it will cause should be examined by researchers as the lives of consumers and their experiences with brands will have the propensity to be transformed by such changes. Pertinent to this theme is understanding consumers' purpose of technology use and how this changes with the advancement of current technology and the introduction of new technology in particularly social media, wearables and AI. Such exploration will help to further our understanding of the technology and consumer well-being paradox.

On the positive side, these technologies can significantly enhance personal health management, with wearables providing real-time health monitoring and AI offering personalized wellness recommendations. Social media can foster social connections with other likeminded consumers/brands and provide support networks, potentially reducing feelings of isolation. However, there are also negative aspects to consider. Excessive social media use can lead to issues such as anxiety, depression, and diminished self-esteem due to the pressure of taking part and social comparison. Privacy concerns are paramount, as wearables and AI collect vast amounts of personal data, which could be misused if not properly protected. Additionally, the overreliance on AI for decision-making might reduce individual autonomy and critical thinking skills. Understanding how to balance these technologies' benefits and drawbacks is essential for ensuring they contribute positively to overall consumer well-being.

Future research, should, therefore, investigate technologies that have specifically been designed to enhance consumer well-being (e.g., meditation apps) and those that directly and indirectly have the propensity to enhance or detract from it (e.g., AI, social media). For example, generative AI offers the possibility to have conversations that reflect real human interactions either by voice or text. However, we have little understanding of the effects such conversations (and their modalities) may have on increasing, decreasing, or managing consumer well-being and subsequent consumer decision making.

Younger generations, more accustomed to digital interactions, may experience enhanced connectivity and convenience, whereas older generations might find these technologies overwhelming, potentially leading to technology fatigue. Likewise, there could be modality preferences in digital interactions. With the potential use of generative AI in service contexts, marketers must understand the

impact this may have on consumers' well-being and if there is a need for human touch.

More so, mindfulness practices may be able to mitigate tech-induced fatigue, promoting a balance between technological and natural consumption experiences to overcome the technology well-being paradox. New methodologies, such as longitudinal studies and real-time data analytics, may help to assess the impact of these technologies on well-being at micro, meso, and macro levels in society. Specifically, technology usage for leisure activity and daily tasks might impact consumers differently than utilizing this technology for work related tasks. As such, understanding the technological proficiency of users for different contexts and the subsequent impact on well-being needs to be considered in future studies.

4.2 | Theme 2: Temporal considerations of technology usage

Continuous longitudinal assessment is needed to fully understand the prolonged impact of technology use on consumers' well-being. While studies have shown both positive and negative effects of social media on consumer well-being, we have limited understanding on how this may change over time. Therefore, research needs to move beyond the point-in-time assessment of technology usage and instead focus on measuring the impact of technology across multiple time periods. Furthermore, as research suggests that well-being can change over time with repeat exposure to technology (e.g., Aldossary & McLean, 2023; Su et al., 2020), understanding the tipping point of technology as it transitions from potentially positive effects to negative effects should be a focal point in future research.

In the short term, technological consumption, such as engaging with wearable technology, may boost life satisfaction by providing utility, entertainment, and social connectivity, however the long-term effects of such technology on consumer well-being is unknown.

As new technologies enter the market, their initial impact is often marked by excitement, but over time, added technology consumption could lead to technology fatigue and diminished life satisfaction, therefore we need to better understand how marketers can strike a balance with their technology offers by understanding the most pertinent consumer technology needs.

More so, we have no empirical understanding on the long-term reliance of AI friendship apps for social needs, while such apps can offer benefits to individuals, they have the propensity for negative psychological effects, potentially reducing real-world social skills and increasing feelings of loneliness. Similarly, while AI customer service interactions may help firms to improve efficiency, they also reduce the presence of human touch, which may have an impact long-term brand relationship development.

Research has demonstrated the importance of social media influencers in many consumers' lives in particular in consumer decision making. However, the authenticity of an influencer's content could play a crucial role in their followers' long-term eudaimonic well-being

TABLE 2 Future research themes and questions.

Theme 1: Changing technologies and the purpose of technology use (in relation to social media, wearables, and artificial intelligence [AI]).

- What are the generational factors that influence consumer well-being outcomes as a result of technological changes?
- Does the modality of communication or service interactions have an influence on consumer well-being? And does this vary across generations?
- How do mindfulness and fatigue interact to influence the well-being derived from technological versus natural consumption experiences?
- What new methodologies can be employed to study the impact of technology on well-being at the micro, meso, and macro levels?
- How can technology be used to improve the accessibility of marketing campaign assets?
- How can immersive technologies (e.g., augmented reality [AR], virtual reality [VR]) be utilized to foster positive consumer well-being outcomes?
- How can conversational AI agents be used to enhance and/or manage consumer well-being?
- How can AI friendship apps be designed to minimize addiction while maximizing user well-being, overcoming the paradox?
- How can medical AI systems be improved to enhance patient well-being and trust in follow-up care?
- How does the design of companion robots influence their effectiveness in reducing loneliness among different age groups?
- What are the ethical considerations in developing high-dominance versus low-dominance robotic companions for lonely consumers?
- How does positive consumer well-being influence consumers' willingness to share personal information on social media brand communities?
- What are the coping mechanisms consumers use to mitigate the negative effects of strong consumer–brand attachments on social media?
- How does self-regulatory focus influence the impact of consumer–brand attachment on daily performance and life satisfaction?
- Can wearable technologies enhance both hedonic and eudaimonic well-being? Are there situations where they have a negative effect on well-being?

Theme 2: Temporal considerations of technology use (in relation to social media, wearables, and AI).

- What are the long-term effects of technological consumption on life satisfaction compared to natural experiences?
- How does the impact of technology change as new technologies enter the market?
- How have established relationships in the context of technology changed across technologies and over time?
- How do different types of brand interactions (e.g., live streaming vs. static posts) on social media influence consumers' hedonic well-being over time?
- What are the long-term psychological effects of relying on AI friendship apps for social needs?
- What are the long-term psychological effects of AI customer service interactions on consumer well-being and need for human touch?
- How does the authenticity of influencers' content affect their followers' long-term eudaimonic well-being and self-esteem?

Theme 3: Adoption of alternative theoretical premises

In relation to adaptation level theory

- How does prolonged use of emerging technologies (e.g., VR, AI companions) impact the adaptation level of happiness in consumers?
- Can technology interventions designed to increase hedonic adaptation sustain elevated levels of happiness over longer periods?

In relation to the attention economy theory

- How does personalized content in social media feeds affect long-term cognitive load and well-being?
- What are the implications of information overload from personalized content on consumers' decision-making and mental health?
- How does the personalization of advertisements and content in digital platforms affect consumers' ability to focus and their overall well-being?
- What strategies can be developed to balance the positive effects of personalized content with the potential negative impacts on attention and focus?

In relation to bottom-up/top-down theory

- How do small daily interactions with consumer technologies (e.g., fitness trackers, social media) aggregate to impact overall consumer happiness and satisfaction?
- What is the cumulative effect of everyday technology use on consumer well-being, particularly in relation to overreliance or addiction to shopping apps?

In relation to broaden and build theory

- What types of consumer technologies, in particular AI powered technologies, are most effective in fostering positive emotions and broadening consumers' perspectives?
- How do negative experiences with consumer technology, such as online harassment in social media branded communities, impact the long-term well-being of consumers and their associations with the brand?

In relation to flow theory

- Which consumer technologies are most effective at inducing flow states, and does this state have an overall positive or negative impact on consumer well-being? And does this change in different consumption contexts?
- How does the experience of flow in interactive consumer technologies (e.g., gaming, AR, VR, and the metaverse) affect consumers' productivity and stress levels?

In relation to goal theory

- Do goal-setting features in consumer technology (e.g., fitness apps and productivity tools) have a positive or negative effect on consumer motivation and well-being and in what contexts?
- What are the impacts of using consumer technology for goal setting on long-term consumer well-being and achievement?

In relation to information overload theory

- How do consumers cope with the continued influx of information from multiple digital devices and platforms? And does such coping mechanism enter the technology wellbeing paradox?
- How do consumers mitigate information overload from brands and does such mitigation have a positive effect on the brand relationship?

In relation to internet addiction disorder

- Can technologies prevent internet addiction, and how can these technologies intervene?
- How do different types of online consumer activities (e.g., social networking, e-commerce) contribute to or mitigate internet addiction symptoms?

In relation to PERMA theory

- How can AI technologies be designed to enhance each component of the PERMA model (Positive emotions, Engagement, Relationships, Meaning, Accomplishment)?

In relation to positive psychology theory

- Can consumers truly use technology to manage eudaimonic and hedonic well-being without negative consequences?
- Does the technology well-being paradox matter?

In relation to self-determination theory

- How do intrinsic and extrinsic motivations for using consumer technologies (e.g., social media, fitness apps) impact users' autonomy, competence, and relatedness?
- What technological features support intrinsic motivation and thereby enhancing consumer well-being through autonomy and competence?

In relation to set-point theory

- How does long-term use of mindfulness and meditation apps influence the set-point of happiness in consumers?
- Are there specific consumer technologies that can cause permanent or long-lasting shifts in an individual's set-point of happiness?

Theory of compensatory internet use

(Continues)

- How do different types of online communities (e.g., support groups, hobby forums) serve compensatory functions for unmet needs in consumers?
- What are the short-term versus long-term effects of using AI friendship apps to compensate for social isolation in consumers across different age groups?

Transtheoretical model of behavior change

- What interventions can be designed to help consumers reduce excessive screen time and improve well-being?
- What specific interventions are effective at each stage (Precontemplation, Contemplation, Preparation, Action, Maintenance) for changing unhealthy technology use behaviors in consumers?

Uses and gratifications theory

- How do different gratifications (e.g., entertainment, social connection, information seeking) from consumers' technology use impact eudaimonic and hedonic well-being?
- What motivates consumers to choose certain health and wellness apps, and how do these motivations affect their well-being outcomes?

and self-esteem. Genuine, relatable content may foster a sense of connection and self-worth, whereas inauthenticity from influencers may lead to dissatisfaction and decreased self-esteem over time. Marketers must understand the impact long-term following of influencers has on consumers' well-being, their decision making and the influencer's associated brands.

More generally, another consideration for future research is the replication or corroboration of previous studies looking at technology and well-being. Empirical insights need to be re-examined to account for changing technology and consumer behaviors related to these technologies. Assessing how established relationships in the context of technology usage develop over time needs to be a priority considering the rapid pace of technological advancements consumers are exposed to.

4.3 | Theme 3: Adoption of alternate theoretical premises

Due to the continuous disruption that advances in technology are predicted to bring to consumers, we propose that future research adopt multiple theoretical lenses. Table A1 outlines 15 relevant theories that scholars could use to develop knowledge of technology and consumer well-being drawing on our conceptual model we have proposed, while Table 2 outlines pertinent research questions related to these theoretical lenses. These theoretical perspectives would also enrich the understanding of outcome variables important in well-being research since the results of technology's impact on well-being can differ depending on the measured dependent variable.

Overall, drawing on our review, conceptual development, and future research avenues we expect this article to provide academics and practitioners with a pertinent collection of works, and a theoretical foundation, for furthering understanding and research on technology and consumer well-being.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

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APPENDIX A

See Table A1.

TABLE A1 Technology and well-being theories.

Theory	Author	Description	Application to technology and well-being
Adaption-level theory of happiness	Brickman and Campbell (1971)	The theory outlines that individuals adjust their expectations and perceptions based on their past experiences, leading to a relative baseline or "adaptation level" against which new experiences are judged. The theory explains why the initial joy or disappointment from new life events (e.g., receiving a promotion, experiencing a loss, or acquiring new possessions) tends to diminish over time, as individuals adapt to their changed circumstances. As a result, their overall level of happiness returns to a baseline position.	This theory can help understand if technology adapts an individual's relative baseline of happiness which becomes the adapted level. Given that technology has become imbedded in everyday life, consumers may now have an adapted baseline happiness due to technology influencing the use of social media, apps, shopping sites etc. When the joy diminishes over time, the impact of the technology may turn from a positive effect on well-being to a negative effect or result in a return to the baseline position.
Attention economy theory	Simon (1971)	The theory outlines that a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it. Accordingly, with the abundance of information and stimuli, human attention becomes a scarce and valuable commodity as individuals' capacity to process information is limited.	This theory can help scholars understand the influence of personalized content based on how a consumer behaves. Importantly, the theory can aid our understanding on how this content can both positively and negatively influence consumer well-being where the carefully curated information might boost eudaimonic dimensions such as self-actualization as a consumer is treated as an individual, but at the same time may negatively reduce focus on tasks.
Bottom up/top-down theory	Diener (1984)	The theory outlines that an individual's overall happiness and satisfaction with life is developed from a multitude of small everyday experiences. This perspective details that daily interactions, activities, and emotional experiences aggregate to shape an individual's general well-being. In contrast, top-down approaches emphasize the influence of overarching factors, such as personality traits or life satisfaction, bottom-up theories focus on how the quality and nature of specific life events and circumstances contribute to an individual's happiness.	This theory could help scholars to uncover the impact that small everyday experiences that are facilitated by technology impact upon a consumer's well-being. The accumulation of small experiences facilitated by technology could boost a consumer's happiness and sense of purpose through connection with others for example. In contrast, the use of technology in everyday experiences could build up an overreliance and use of technology.

TABLE A1 (Continued)

Theory	Author	Description	Application to technology and well-being
Broaden and build theory	Fredrickson (2004)	The theory outlines the importance of positive emotions in human growth and development. Experiencing positive emotions <i>broadens</i> exploratory thoughts enabling individuals to draw from a wide array of ideas at any moment. The broadening effect is a contrast the narrowing effect of negative emotions. Over time, a broadened mindset fostered by positive emotions builds enduring personal resources.	This theory can help understand the circumstances in which technology can be used to broaden exploratory thoughts and at the same time identify how technology may be capable of narrowing thoughts with negative emotions. The types of technologies capable of these effects could be outlined.
Flow theory	Csikszentmihalyi (1997)	Flow theory discusses the deep immersion and engagement with an activity, where individuals encounter a heightened sense of focus, attention, fulfillment and enjoyment. Flow occurs when there is a synergy between the challenge of an activity and an individual's appropriate skill set. During which they become absorbed in the task.	Flow theory can be applied to understand situations in which flow offers benefits to a consumer's well-being, taking them away from the stresses and strains of the real world and absorbing them in the task they are completing. Flow can help individuals achieve goals which can influence human flourishing. Conversely, the total absorption in an activity may distract consumers from activities they need to complete having a negative effect on well-being.
Goal theory	Locke et al. (1981)	The theory evolves around the central idea that conscious goals affect the outcome of an individual's actions. It suggests that setting specific and challenging goals leads to higher performance compared to simple or ambiguous goals. It outlines that well-defined goals can act as motivators that enhances personal satisfaction.	The theory can help scholars to better understand the eudaimonic component of well-being and life satisfaction. The theory can outline how technology may be able to facilitate goal achievement or goal setting, which could explain increases in consumer well-being. This theory could help to uncover the motivations of technology use in relation to well-being.
Information overload theory	Bertram (1964)	The theory suggests that the volume of information, afforded by the advancements in technology can overwhelm individuals which can lead to reduced decision-making quality, increased stress, and decreased overall well-being. As individuals struggle to filter, prioritize, and comprehend the information they encounter, they may experience cognitive overload which can effect their ability to focus and make informed decisions.	This theory can help scholars understand how access to information can become overwhelming to consumers. Technology opens up the ability to access information anywhere and at any time. Given, the range of information pushed upon consumers through social media, applications, and wearable technology, the heightened information may reduce the cognitive ability to make clear and controlled decisions impacting on consumer well-being.
Internet addiction disorder	Young (1998)	The theory outlines that excessive Internet use can lead to symptoms commonly associated with addiction, such as withdrawal, tolerance, and negative repercussions on personal, social, and occupational functions. The theory outlines that individuals continue with excessive use despite awareness of negative consequences.	The theory can help uncover the addictive nature of Internet use and the potential negative effects of different types of Internet related addiction on consumer well-being. The theoretical lens will enable scholars to understand that consumers may use technology even though they have awareness of the negative consequences.
PERMA theory	Seligman (2011)	PERMA theory provides a comprehensive framework for evaluating and enhancing well-being beyond happiness, offering a more holistic approach to understanding well-being. It involves five components including: Positive emotions, engagement, relationships, meaning, and accomplishment.	This theory would help to develop a greater granular understanding of specific components of well-being and the influence technology may have on positively developing these dimensions, negatively influencing them or helping consumers to manage them.

(Continues)

TABLE A1 (Continued)

Theory	Author	Description	Application to technology and well-being
Positive psychology theory	Seligman and Csikszentmihalyi (2000)	The theory focuses on both hedonic and eudaimonic well-being. The theory is centered on positive human flourishing on multiple levels.	Scholars can apply the theory to understand how technology can result in enhanced and decreased well-being from a holistic perspective involving hedonia and eudamonia.
Self-determination theory	Ryan and Deci (2000)	The theory focuses on the role of intrinsic and extrinsic motivations driving human behavior involving the importance of autonomy, relatedness, and competence.	This theory can be applied to understand the situations that drive technology use drawing on intrinsic and extrinsic motivations and how components of the theory (e.g., autonomy) may relate to enhancing, decreasing or managing well-being.
Set-point theory	Lykken and Tellegan (1996)	Set-point theory outlines individuals have a baseline level of happiness which is determined by the individual themselves (e.g., personality). This baseline remains relatively stable over time. Major life events and other circumstances can temporarily cause fluctuations in an individual's happiness, but over time, individuals return to their baseline or "set-point" level of happiness. The theory outlines that despite significant positive or negative changes in one's life situation, the long-term impact on overall happiness is minimal because of this inherent set-point.	This theory can help us to understand if technology has long-term impacts on consumers' well-being or if consumers return to their baseline set-point regardless of technology use. Understanding an individual's baseline could uncover the temporality of the potential impact of technology on consumer well-being.
Theory of compensatory internet use	Kardefelt-Winther (2014)	The theory suggests that individuals may turn to the Internet as a way to cope with or compensate for unmet needs in their offline lives. The theory outlines that individuals may use the internet to satisfy desires such as the pursuit of social connections, escapism, entertainment, or self-esteem.	The theory can aid our understanding on why consumers turn to Internet enabled technologies to satisfy specific needs. Scholars would be able to investigate the temporality of internet compensation to satisfy needs. Importantly, the theory could be an interesting lens to further understand on the use of friendship well-being applications.
Transtheoretical model of behavior change	Prochaska and DiClemente (1983)	Traditionally applied to addiction and health behavior change, the theory can provide insights into internet overuse by framing it as a behavior that individuals are at various stages of readiness to change. The theory outlines that change is a process that unfolds over time through a sequence of stages: Precontemplation, Contemplation, Preparation, Action, and Maintenance. Each stage represents a different readiness to change, with specific strategies and processes being effective at each stage to facilitate progress towards sustained change.	The theory can be used by scholars to understand behavior change in relation to consumer well-being. The five stages (precontemplation, contemplation, preparation, action, and maintenance) can be used to understand how consumers can use technology to manage their well-being across different activities.
Uses and gratifications theory	Katz et al. (1973)	The theory outlines that consumers are active participants who choose technology sources that meet their individual desires and requirements, for example: Entertainment, information seeking, personal identity development, social connection, and escapism. The theory acknowledges that people have different motivations for engaging with technology, and these motivations lead to the selection of different types of content and platforms.	This theory could help to uncover the motivations behind consumers using different types of technology to manage well-being. At the same time, the theory may help to develop understanding on the motivations and gratifications consumers get from technology use and effects this has on the different dimensions of well-being, boosting hedonic or eudaimonic well-being or both simultaneously.