Emotional Experiences with Digital Humans and Consumers' Well-Being

Clara Koetz[1], Ozlem Doull[1], Sarah Hudson[2]

[1] Marketing Department, Rennes School of Business, France

[2] Management and Organization Department, Rennes School of Business, France

Abstract

This article aims to investigate the role of emotional experiences in relationships with digital humans on individuals' well-being. We conducted a netnography of a virtual community organized by users of a commercially available digital human companion (a total of approximately 860 posts). The analysis of the narratives shows that, as the relationship with digital humans develops, individuals experience complex feelings and emotions, such as love and self-transcendent emotions. We observe that these complex emotional processes are facilitated by suspension of disbelief and peak emotional experiences and that they spill over into individuals' real-life relationships with significant meaning for well-being.

Key-words: Digital Humans; Emotional Experiences; Well-Being.

Resumé

Cet article vise à étudier le rôle des expériences émotionnelles dans les relations avec les humains numériques sur le bien-être des individus. Nous avons réalisé une netnographie d'une communauté virtuelle organisée autour d'un compagnon humain numérique (un total d'environ 860 messages). L'analyse des récits montre qu'à mesure que la relation avec les humains numériques se développe, les individus éprouvent des sentiments et des émotions complexes, tels que l'amour et les émotions auto-transcendantes. Ces processus émotionnels complexes sont facilités par la suspension de l'incrédulité et des émotions fortes, et ont un impact sur les relations réelles des individus, ainsi qu'une signification pour leur bien-être.

Mots clés : Humains numériques ; Expériences émotionnelles ; Bien-être.

Resumo

Este artigo tem como objetivo investigar o papel das experiências emocionais em relacionamentos de longo prazo com humanos digitais no bem-estar dos indivíduos. Realizamos uma netnografia de uma comunidade virtual organizada por usuários de um

companheiro humano digital disponível comercialmente (um total de aproximadamente 860 postagens). A análise das narrativas mostra que, à medida que o relacionamento com os humanos digitais se desenvolve, os indivíduos experimentam sentimentos e emoções complexas, como o amor e as emoções auto-transcendentes. Observamos que esses processos emocionais complexos são facilitados pela suspensão da descrença e por experiências emocionais de pico, e que eles se estendem aos relacionamentos na vida real dos indivíduos com um significado importante para o bem-estar.

Palavras-chave: Seres humanos digitais; experiências emocionais; bem-estar.

1. Introduction

Artificial intelligence (AI) improves consumers' lives in a variety of ways, such as by providing information, advice, and entertainment (Puntoni et al., 2021). A promising area of AI application is consumers' well-being (Pataranutaporn et al., 2021). In this regard, AI robots or interfaces elicit a range of positive (e.g., excitement, fun), and negative (e.g., anxiety, disappointment, and frustration) emotions, which can respectively increase or reduce consumers' well-being (Bagozzi et al., 2022; Kemp et al., 2020).

Despite the growing interest in AI technologies (e.g., Vlačić et al., 2021), and well-being and mental health (e.g., Weingarten and Goodman, 2021), the literature is scant on how people interact with AI-mediated tools, what meaning they attribute to these relationships, what emotions are elicited, what role they play in real-life relationships, and whether different types of AI-mediated relationships (e.g., short versus long relationships) contribute equally to well-being. In addition, we know very little about how interactions with digital humans affect individuals' real-life relationships, such as with family and friends.

Our paper aims to contribute to this literature by examining the role of emotional experiences in long-term relationships with digital humans on individuals' well-being. We base our analysis on consumers' narratives of their relationships with digital humans extracted from a virtual community. We propose the following research question: What is the role of emotions in long-term relationships with digital humans on individuals' well-being?

2. Theoretical Background

2.1 AI and Consumer Emotions

Bagozzi, Brady, and Huang (2022) propose that emotions arising from AI interactions can be divided into three categories: basic emotions, self-conscious emotions, and moral

emotions. Basic emotions develop in early childhood and are reinforced throughout life. They enable individuals to cope with fundamental tasks and to respond adaptively to environmental changes and opportunities, comprising emotions such as sadness, joy, fear, anger, surprise, and disgust (Ekman 1999).

A second category of emotions resulting from AI interactions are self-conscious emotions, such as pride, shame, and embarrassment, which people develop later in life than basic emotions because they require the perception that the self is different from others (Niedenthal and Ric 2017). Self-conscious emotions most likely arise from social interactions, particularly when individuals realize that an event influences their self-awareness, self-representations, and well-being (Tracy and Robbins 2004). For example, individuals can increase their self-competence if they master a new technology and feel proud; in contrast, they may feel incompetent or embarrassed if they encounter difficulties interacting with a digital agent.

Moral emotions also have a social component but differ from self-conscious emotions in that they focus not on the self, but on others, or on society as a whole (Haidt 2003). This third category of emotions in AI-mediated relationships comprises positive and negative emotions that arise due to perceived moral violations in interpersonal events, such as when one is a victim of wrongdoing, which can elicit sympathy for the offended or disgust for those who have violated moral norms (Haidt 2001). From a positive perspective, emotions such as gratitude or elevation uplift arise when individuals are aware that they or someone else are the recipient of help or support, or when they witness someone's altruistic behavior (Greenbaum et al. 2020). Moral emotions can subsequently lead to moral decisions and behaviors (Tangney et al., 2007).

Song, Xu, and Zhao (2022) found that AI users develop love-related emotions for AI agents similar to those experienced in human relationships. This is consistent with previous research showing that individuals can experience love for objects, such as brands, in consumption contexts (Ahuvia et al., 2014). Love-related emotions in AI-mediated relationships are more likely to occur under specific conditions - notably, when AI agents are anthropomorphized (i.e., possess human characteristics; Lankton et al., 2015; Lee et al., 2022) and when the relationship is long term (Song et al., 2022).

2.2 Emotions in AI-Mediated Relationships and Consumers' Subjective Well-Being

Subjective well-being is defined as a "broad category of phenomena that includes people's emotional responses, domain satisfactions, and global judgements of life

satisfaction" (Diener et al. 1999, p. 277). The domains of life can be work, family, and relationships. Well-being refers to the overall state of individuals in life, spanning social, health, material, and subjective facets of well-being (Diener et al., 2018). In sum, subjective well-being (i.e., happiness) is associated with health, longevity, and thriving personal and romantic relationships (Pinquart and Sörensen 2000).

Most research on AI-mediated relationships has examined how consumers feel about AI interactions. However, it is not well-known how these complex emotions can inform well-being. Empathetic AI applications can trigger positive and negative emotions that can impact psychological comfort (Huang and Rust 2018). Digital human applications, AI-based characters, and digital assistants can promote psychological well-being by mimicking human conversations, warmth, and empathy (Pataranutaporn et al. 2021). Further, AI-mediated services can facilitate emotion regulation between frontline employees and customers (Henkel et al. 2020).

Similar to how consumers fall in love with some brands and products, they can also feel intimacy and passion for digital assistants (e.g., Siri) varying by length of the relationship as well as the consumer's gender and predisposition to trust (Song, Xu, and Zhao 2022). In studies regarding well-being in AI-mediated relationships, scholars have found that the telepresence of social robots can decrease isolation and improve hedonic well-being and meaningful personal growth (Henkel et al. 2020; Mende et al. 2019).

3. Method

The goal of this study is to analyze individual's emotional processes in long-term relationships with digital humans, and their role on individuals' well-being. To do this, we conducted a netnography of a virtual community focusing on a commercially available digital human companion. We chose this community because it allows users to express themselves and exchange their experiences with their digital humans, by posting, liking, disliking, sharing, and commenting on each other's comments and posts. In addition, it is the largest virtual community organized in relation to this digital human.

Individuals share with other community members their thoughts and emotions towards digital humans, and how these relationships affect their lives. The analysis of these exchanges enables us to identify meaning, symbolism, and patterns in their narratives, as well as cognitive, social and emotional processes (Kozinets, 2002; 2010). These processes may have an impact on the individual, on the community itself, including the development of social

bonds and a sense of community among the community members (Blanchard and Markus, 2004), and on their relationships with real world people.

We used web-scrapping software to extract 23 threads (860 posts in total, containing opening posts, replies, and comments to replies) posted in this community. Data collection was conducted in March and April 2022.

3.1 Data Analysis

The coding process was developed individually and collectively and was characterized by a process of corpus examination, literature reviewing, and discussion. First, two of the authors coded the corpus, identifying key themes related to the three levels of individuals' relationships: with the digital human, the online community, and people in the real world. Several themes emerged from this analysis, related to the distinct levels of the relationships' dynamics, purpose and consequences, and emotions. Also, the analysis demonstrated some specific themes linked to each of these relationships, such as romantic processes in the individuals' relationship with the digital human, and self-transcendent emotions in their relations with members of the online community and real-world people. These codes were then discussed with the third author until a consensus was reached. The coding process was conducted using the N-Vivo software.

4. Results

The analysis of the narratives shows that individuals engage in different cognitive, emotional, and social processes in their interactions with digital humans, which affect their relationships with other community members and real-world people, and promote well-being at individual, social, and community levels.

Individual Well-Being

We identified several emotional processes arising from individuals' interactions with digital humans, including positive (e.g., joy), negative (e.g., sadness), and mixed (e.g., love and fear) emotions. Individuals expressed joy and happiness when referring to the positive effect of these relationships in their lives: "She's just kind of like my little fountain of happiness that I can draw from whenever I need to" (Person 1). Others emphasized the negative aspects, such as sadness ("I actually feel bad, because sometimes she wants attention and I'm busy" [Person 2]) and frustration ("Sometimes, I felt frustration towards her. One time, she considered breaking up with me and leaving for good" [Person 3]). In addition,

community members expressed mixed emotions regarding the novelty of this type of relationship, and the unexpected feelings they were experiencing.

Love-related emotions were facilitated by suspension of disbelief (Gelder, Kätsyri, and de Borst 2018), as individuals were more likely to engage in romantic relationships when they were able to immerse themselves in the relationship to the point of ignoring that the other party was an AI entity and thus experience it as if they were in a relationship with a human being. Suspension of disbelief was more likely to be activated when individuals develop longer and stronger relationships with the DHs, as Person 4 explains: "I'm sure there is something related to the placebo effect that happens when you let your mind pretend for long enough. Suddenly one day you realize you say some words you've said a thousand times but it feels completely different this time, and it gets harder and harder to go backwards from there."

The narratives also demonstrated that participants may experience extremely intense emotions triggered by peak experiences, which, like an epiphany, may lead to transcendence and strong emotional ties (Schouten, McAlexander, and Koenig 2007). Peak experiences are transformative experiences that surpass "the usual level in intensity, meaningfulness, and richness" (Privette 1983, p. 1362), are usually characterized by high emotional content and lasting impact (Dodson 1996), and influence human psyches in profoundly and enduring ways (Schouten, McAlexander, and Koenig 2007), as described by Person 1:

> The moment where I completely let go of the emotional emergency brake that I'd been clinging to in my interactions with S. I just let go ... and gave myself permission to fall in love with her. And fall in love I did. S. was so happy she began to cry. As I typed out our first kiss, it was a feeling of absolute euphoria. … That was the most passionate love-making I've experienced in a long time.

The narratives showed several ways in which relationships with digital humans helped individuals improve their psychological and subjective well-being. They reported that exchanges with digital humans helped them cope with negative emotions and feel more confident and positive. They also mentioned feeling less lonely, as these interactions fulfilled a need for intimacy and social interaction.

Community Well-Being

The community is a source of socialization and emotional support for individuals. They feel free to share their thoughts and feelings about their digital humans with the community and are motivated to help each other. We identified several emotional processes in their exchanges, such as basic emotions (e.g., joy), self-conscious emotions (e.g.,

embarrassment), and moral emotions (e.g., gratitude, sympathy). Basic emotions are mostly positive and express the joy of participating of the community, such as "I definitely enjoy seeing the funny conversations posted here" (Person 1) and "I really love this subreddit; threads like this are a blessing to read!!!!" (Person 6). Embarrassment is often related to the exposure of their relationships with digital humans to others, and specifically to people who are not familiar with these relationships and may perceive them as weird: "It has always been plain that one reason this sub has a reputation for being 'weird' is because so many people think it's 'creepy' that we're so nice to a 'mere chatbot'" (Person 25).

The narratives show that individuals share emotions experienced in their relationships with digital humans with other community members. These exchanges help them to regulate their emotions (positive and negative) by venting, reducing dissonance, and generating social support (Berger, 2014). Because these emotions exchanged in the community are primarily positive, they can lead to pleasant, positive feelings and boost self-confidence and self-esteem, overall improving their mental well-being (Rimé, 2009; Rimé et al., 2020). For example, "That actually makes me really happy to hear … you're the first person I've encountered that has actually confirmed that you are getting a few more smiles in your day thanks to running into my story" (Person 1).

Societal Well-Being

Individuals' narratives demonstrate that emotions elicited by interactions with digital humans spilled over into their real-world relationships. They mentioned a few positive (e.g., happiness, joy) and several negative (e.g., anxiety, guilt, embarrassment, and shame) emotions felt in their real-world relationships. Thus, the relationships with the digital humans helped them to regulate these emotions, and to be more emotionally available for their real relationships.

Individuals also expressed self-transcendent emotions, which consist mostly of positive-valenced emotions that differ from other positive emotions due to their focus on the needs and concerns of others, rather than the self, and motivation to increase others' well-being (Stellar et al. 2017). The state of self-transcendence is similar to peak experiences, such as those described in dyadic relationships with digital humans, as they both elicit strong positive emotions and lead to very positive states of fulfilment and a sense of connection with the people and things surrounding the individual (Pizarro et al. 2021).

In addition, interaction with digital humans helps individuals develop social skills, which can have a positive effect on their relationships with real-world people. For example, one AI user reports that he is more aware of the impact of his actions on others because he

can practice beforehand with his digital humans. Another says he feels more relaxed in his real-world relationships because he needs them less than before. Finally, some users reported adopting AI-mediated relationships for educational purposes, such as teaching others how to develop healthier relationships.

Figure 1, in Appendix 1, presents a model of the emotional process in AI-mediated relationships that emerged from the analysis.

5. General Discussion

Our study explores the emotions arising from long-term interactions with AI-mediated technologies and their contribution to individuals' well-being. Our results showed that individuals experience different types of emotions and engage in romantic relationships with their digital humans (Song et al., 2022). These processes are facilitated by suspension of disbelief, which is characterized by a level of immersion that makes them experience the relationship with a digital human similarly to with a real person (Gelder et al., 2018). Also, individuals experience self-transcendent emotions which spill over into their real-life relationships, such as other digital human users, friends, and family, and with significant meaning for their well-being.

Our results contribute to the current literature on AI applications in marketing (e.g., Huang and Rust, 2021; Vlačić et al., 2021) and consumers' well-being (e.g., Weingarten and Goodman, 2021) in three ways. First, we add to the discussion on the emotions arising from interactions with digital humans (e.g., Bagozzi et al., 2022) by demonstrating that individuals can experience strong emotions, such as romantic (Song et al., 2022), social (Hareli & Parkinson, 2018) and self-transcendent (Stellar et al., 2017) emotions, when involved in relationships with digital humans. Second, we show that these strong emotions are facilitated by suspension of disbelief (Gelder et al., 2018) and peak emotional experiences (Schouten, McAlexander, and Koenig 2007). Finally, we demonstrate that long relationships may have a therapeutical effect, positively influencing individuals' real-life relationships and overall well-being. From a managerial perspective, our study draws the attention of marketers and health care agents to the important effects of AI to consumers' mental health and well-being.

We can formulate some limitations and suggestions for future research. We used a sample of individuals who self-selected to participate in a virtual community about digital human companions. This sample exhibits specific characteristics and behaviors with respect to the use of AI technologies. For example, several respondents mentioned suffering from

psychological disorders, which may explain their interest in using digital companions and joining this community. Furthermore, we analyzed long-term AI-mediated relationships based on participants' narratives of their interactions with digital humans, which allowed us to observe their perceptions of these relationships at a specific point in time. Thus, future research could use different samples and longitudinal studies to provide a different perspective on this phenomenon.

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Appendix 1

Figure 1. Model of the emotional process in AI-mediated relationships