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The negative social roles of virtual conversational agents in consumer interactions

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Abstract

Purpose – Current marketing literature claims that consumers can establish relationships with virtual conversational agents (VCAs) that can be referred to as interpersonal ones. Despite the risks that these relationships can entail, the investigation of negative VCA social roles is still underdeveloped. This study aims to address this gap.

Design/methodology/approach – The authors launched a qualitative survey in which participants were asked to write about a prototypical episode regarding a negative relationship with a VCA.

Findings – A typology of five negative VCA social roles emerged: Dealer, Diminishing partner, Stalker, Enemy and Annoying acquaintance.

Practical implications – Understanding how consumers interact in negative relationships with VCAs can give policymakers and practitioners a clearer idea of the risks that consumers are exposed to during these interactions, foreshadowing possible negative effects and helping them to find a way to prevent them.

Originality/value – This work proposes a deep analysis of the dark side of consumer–VCA relationships that has previously been understudied, especially in terms of VCA social roles.

Keywords Consumer–object relationship, Virtual conversational agents, Human–computer interaction (HCI), Smart products, Artificial intelligence

Paper type Research paper

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1. Introduction

Virtual conversational agents (VCAs) have become pervasive interlocutors in everyday life. These software-based systems use natural language to interact with humans for a wide range of purposes (Xu and Liao, 2020). Indeed, VCAs have rapidly expanded across domains and use occasions. Taking cues from previous literature (e.g. Bavaresco *et al.*, 2020), we argue that the domain of VCAs can involve two types of VCAs: personal VCAs and customer service VCAs. Personal VCAs, such as Alexa or Siri, belong to a service provider, are embedded in one or more consumer devices, and have a "personal" nature since consumers can use them for multiple purposes and functions in their everyday lives (e.g. to create reminders or listen to music). Customer service VCAs, such as the VCA of Mercedes-Benz's self-driving cars, Vodafone's customer service and Bank of America's, are VCAs with which customers interact to access and use a specific service, usually offered by a specific brand; therefore, the interactions have a situational nature rather than a personal one.

As adoption rises (Wohr, 2025), so do accounts of negative user experiences. Consumers increasingly describe VCAs as irritating, creepy, unhelpful, overconfident, intrusive or even discriminatory and dangerous for users' privacy (Latham, 2023). These issues resonate with international organizations' and policymakers' concerns. The World Economic Forum has highlighted the potential for VCAs to disadvantage marginalized groups (Khan, 2022), and the European Parliament has warned of risks related to consumer deception, manipulation and addiction to VCAs (Bird *et al.*, 2020). Beyond societal consequences, negative VCA encounters carry clear market repercussions. Nearly one-third of consumers who experience a negative interaction abandon purchase, switch brands, or engage in negative word of mouth (Press, 2023).

Despite these growing concerns, academic literature on human–computer interaction (HCI; e.g. Shneiderman *et al.*, 2016) and on the social roles of artificial intelligence (AI) technologies (e.g. Schweitzer *et al.*, 2019) has emphasized the *positive* social roles that VCAs can play, such as partner or servant. This focus on the positive spectrum may stem from prior research drawing on interpersonal interaction models, identity and social theories (e.g. Novak and Hoffman, 2019; Schweitzer *et al.*, 2019). These approaches have led to the identification of VCA social roles based on foundational elements of interaction (e.g. communality and agency; Kiesler, 1983) that do not differentiate according to valence. However, consumers' negative interactions hint at a broad and substantive landscape of negative VCA social roles that remains theoretically and empirically underexplored. Except for preliminary evidence about the negative social role of the master, reported by users as a reason to stop using VCAs (Novak and Hoffman, 2019; Schweitzer *et al.*, 2019), and four negative social roles reported by non-users as a reason to resist adopting smart objects (Querci *et al.*, 2024), the literature lacks a systematic examination of this issue. Specifically, prior research has not comprehensively investigated how consumers negatively view VCAs, the full spectrum of negative social roles they may attribute to them, and the elements of each specific social role. Thus, the following research question arises:

RQ. What negative social roles do consumers attribute to VCAs?

To answer this question, we draw on the social negativity framework (Brooks and Dunkel Schetter, 2011) and situate it in the research on HCI (Shneiderman *et al.*, 2016) and social roles of AI technologies (Schweitzer *et al.*, 2019) to conduct an explorative qualitative study and identify a typology of five negative VCA social roles.

This study contributes to the literature in several ways. First, it adds breadth to previous research on the social aspects of VCAs (e.g. Hernandez-Ortega and Ferreira, 2021; Schweitzer *et al.*, 2019) by analyzing the negative spectrum of VCA social roles. We identify five negative roles and their specific characteristics, thereby emphasizing the complex,

heterogeneous and nuanced nature of consumer–VCA relationships. Second, we propose the social negativity framework (Brooks and Dunkel Schetter, 2011) as a theoretical lens for analyzing consumer narratives about negative VCA social roles. Since this framework focuses explicitly on negative relationships, it enables a detailed and structured account of negative VCA roles grounded in the dimensions of negativity, rather than in general and foundational rules governing consumer–VCA interactions. Third, we discuss the social roles, considering two distinct types of VCAs: personal and customer service VCAs. Finally, by surfacing a wide range of issues related to the negative VCA social roles across different VCA types, our findings provide actionable insights for managers designing or deploying these systems, as well as for policymakers aiming to mitigate their potential harm.

2. Theoretical background

2.1 VCAs as social entities

People often interact with non-human entities and agents in a human-like way, applying human rules to reduce uncertainty during these interactions (Epley *et al.*, 2007). Indeed, a whole branch of the HCI literature focuses on the so-called computer-as-social-actors (CASA) paradigm and explores how people apply social conventions to computers (Nass *et al.*, 1994). As new technologies develop, there are new frontiers and approaches that must be explored to elucidate users' interaction with technologies. VCAs are autonomous and agentic entities (Hoffman and Novak, 2018) with human-like communication skills, individual personalities (Xu and Liao, 2020) and the ability to elicit social presence (McLean and Osei-Frimpong, 2019). Consumers also perceive VCAs as having a mind of their own (Shank *et al.*, 2019). These aspects all contribute to the idea that consumers view VCAs as social entities that can play different types of social roles. Inspired by role theory (Kahn *et al.*, 1964), in this paper, we conceptualize negative social roles as specific, socially defined patterns of negative behaviors that VCAs can perform in their relationships with consumers. As we explain below, when VCAs enter people's daily lives, they are no longer inanimate tools but instead take on social roles that favor the development of different types of negative relationships.

2.2 VCA social roles and their effect on consumers

Taking cues from previous literature about HCI (e.g. Nass *et al.*, 1994), relationships theory (e.g. Altman and Taylor, 1973), and even about consumer–brand relationships (e.g. Fournier, 1998), several works explored the domain of social roles interpreted by technologies like VCAs, especially in the context of personal VCAs (see Appendix 1). Even though in several cases researchers acknowledge the ambivalent nature of consumer–VCA relationships, the social roles explored so far can be distinguished into two different categories based on the valence of the relationship: positive social roles and negative ones.

In the positive category, two roles occupy a significant position: partner and servant. Although it can be differently defined in different works (e.g. friend, secretary – Rhee and Choi, 2020), this dichotomy is widely explored in literature. When interpreting the role of the partner, the VCA is perceived as an entity that is at the same level as the user (Novak and Hoffman, 2019; Schweitzer *et al.*, 2019), with a more informal type of relationship and interaction (e.g. Mou *et al.*, 2024) based on collaboration (Hartmann *et al.*, 2023; Schweitzer *et al.*, 2019). The servant VCA, instead, from a hierarchical point of view, occupies a subordinate position compared to the user (Novak and Hoffman, 2019; Schweitzer *et al.*, 2019). Therefore, in this case, the relationship and the interaction have a more formal nature (e.g. Rhee and Choi, 2020), with the VCA subserviently answering users' requests (Zhang *et al.*, 2024).

Despite the relevance and prevalence of the partner-servant dichotomy, other positive VCA social roles have been explored in literature. For example, a work by Ramadan *et al.* (2021)

focuses on the relationship between users with special needs and VCAs. In that context, the authors found that VCAs can be perceived as a provider of functional benefits, a friend, a companion and a caregiver (Ramadan *et al.*, 2021). All those roles, although they are all positive, reflect different stages of user–VCA relationships with different levels of needs and trust, therefore giving a nuanced image of the positive spectrum of VCA social roles that complement and expand the roles of partner and servant.

If the category of positive VCA social roles is composed of different roles that touch different nuances of the domain of positive relationships, the research that explored negative social roles focused on one main role: the master. When the VCA is a master, consumers perceive it as being in a higher hierarchical position than themselves (Novak and Hoffman, 2019); they view it as an unpredictable entity that cannot be trusted and that is out of their control. In this case, consumers may feel exploited by technology, exposed to privacy issues and involved in a "perverted relationship" (Schweitzer *et al.*, 2019, p. 707). In other words, extant literature has used the role of the master to represent the whole domain of negative relationships, neglecting the potential existence of a plethora of different roles that can capture the nuanced nature of negative relationships. This lack of depth in the negative domain of roles is somewhat surprising for several reasons. In the interpersonal realm, negative relationships are complex and nuanced, with different dynamics that can alter the nature of the relationship, although remaining in the negative and dark domain (Perlman and Carcedo, 2010). According to past HCI research (Nass *et al.*, 1994), social dynamics can be reproposed in the user-technology domain; therefore, as interpersonal relationships are complex and nuanced, with different dark social roles being expressed (e.g. stalker – Spitzberg and Cupach, 2002), the same can happen in users–VCA relationships. Some preliminary findings about that can be found in the work of Querci *et al.* (2024), which explores smart objects' (such as VCAs) negative social roles anticipated by non-users. In their work, the authors found that non-users may perceive smart objects as stalkers, captors, masters and seducers. An overview of all the VCA social roles explored in literature is summarized in Appendix 1.

Taking cues from the nuanced approach of Querci *et al.* (2024) and inspired by the more heterogeneous set of VCA positive social roles examined in literature, our objective is to provide a more comprehensive and deep set of negative VCA social roles that can give managers and researchers a more nuanced image of the negative spectrum of user–VCA relationships. To do that, we will rely on the theory of interpersonal relationships and, in particular, on the social negativity framework developed by Brooks and Dunkel Schetter (2011) that we will explore in the next section.

2.3 Negative interpersonal relationships and the framework of social negativity

The literature on negative interpersonal relationships claims that negative relationships can involve a wide array of relational and behavioral issues, from mere conflicts or annoyances to more severe issues such as loneliness, anger, betrayal and even violence (Perlman and Carcedo, 2010). People involved in negative interpersonal relationships can also experience a myriad of negative psychological effects, such as paranoia, helplessness, stress and fear (Spitzberg and Cupach, 2002).

Although there are not a lot of theories that focus strictly on negative relationships, a framework that encapsulates the complexities expressed in negative relationships is the social negativity framework developed by Brooks and Dunkel Schetter (2011). Social negativity is defined as the presence of "behaviors which are directed at the recipient and are perceived as aversive or unwanted, and does not simply refer to the presence of negative feelings about another person" (Brooks and Dunkel Schetter, 2011, p. 905). According to the

social negativity framework, negative social experiences are explained by three potentially overlapping dimensions: conflict, insensitivity, and interference. Conflict refers to behaviors that provoke conflict, especially those that involve the expression of anger. Insensitivity refers to behaviors that express disregard for the needs or wishes of the other person. Finally, interference refers to behaviors that hinder the ability of the other person to pursue personal goals (Brooks and Dunkel Schetter, 2011).

We think that the model proposed by Brooks and Dunkel Schetter (2011) gives a relevant lens and framework to observe and study the domain of negative VCA social roles for several reasons. First, according to HCI literature, the interaction between users and technologies reflects social schemas. Therefore, we argue that relying on a framework that studies interpersonal relationships is appropriate and can give us a relevant lens to observe the VCA negative social roles phenomenon. Second, most research on users–VCA relationships relies on theoretical frameworks that address general aspects of interpersonal relationships (e.g., social penetration theory – Altman and Taylor, 1973). In contrast, the social negativity framework focuses on negative relationships. This specific focus makes it particularly well-suited to examine the factors that lead consumers to attribute negative social roles to VCAs. Finally, the overlapping and non-mutually exclusive dimensions of the social negativity framework provide a lens capable of thoroughly capturing the domain of negative VCA social roles. In particular, this structure enables a more nuanced understanding of the complex nature of the phenomenon.

In summary, focusing exclusively on the master role is insufficient to capture the full range of risks consumers face in the VCA landscape (Bawack *et al.*, 2024). Identifying and articulating distinct negative social roles can enhance our understanding of the nuanced nature of consumer–VCA relationships and offer practical insights for managers seeking to avoid the effects of negative consumer experiences. To reach this goal, the present research adopted an exploratory approach, detailed in the next section.

3. Methodology

3.1 Data collection

To answer the research question, we ran a qualitative study using an online survey. Online qualitative surveys allow researchers to gain a comprehensive view of potentially sensitive and underexplored topics by enabling the collection of rich, detailed data on participants' perspectives and experiences, as responses are provided privately (Braun *et al.*, 2021). Online qualitative surveys have been used in the marketing context to investigate underexplored topics, such as negative consumer emotions toward brands (Haase *et al.*, 2022) and the impact of generative AI on society (Wei *et al.*, 2024).

Following current practices in the field (Braun *et al.*, 2021), we launched an online qualitative survey created using Qualtrics. The survey aimed to collect detailed information about participants' emotions and evaluations regarding negative episodes with VCAs. We first provided participants with a definition of a VCA and asked them to write about one or more negative episodes they considered representative of their relationship with a VCA. They were asked to describe the episodes in detail as if they were re-experiencing them. Finally, participants provided sociodemographic information. In the absence of a relevant personal experience, participants could describe a negative episode involving someone close to them (we refer to those as vicarious experiences).

Indeed, given the exploratory nature of the study, we allowed respondents to report vicarious experiences too. This approach aimed to uncover deeper, more uncomfortable aspects of consumer–VCA relationships. According to the literature on maladaptive relationships (Pickard, 2016), people may not recognize or describe maladaptive relationships or events

when directly involved. Moreover, reporting others' experiences can reduce social desirability bias and encourage more honest responses (Grimm, 2010; Maccoby and Maccoby, 1954). Considering the research topic, social desirability bias could have made respondents unwilling or unable to accurately report negative episodes with VCAs.

Prior to data collection, which involved master's students, the authors ensured compliance with international ethical standards, including the principles outlined in the 1964 Declaration of Helsinki and its later amendments. Participants were provided with comprehensive information regarding the study's procedures. First, we explained to participants the purpose of the study by informing them that the study was a qualitative survey about VCAs, and the task they were asked to perform. Specifically, we provided them with a definition of VCA and told them that they would be asked to write about a personal negative episode prototypical of a negative relationship they had had with a VCA. If they had never experienced a negative episode with a VCA, we asked them to refer to a negative episode that a person close to them had experienced with a VCA (i.e. a vicarious experience). If they wished, they could describe more than one episode that was relevant to them. In that case, we asked them to describe each episode separately, providing all relevant details. Second, we informed participants that participation was voluntary and that they had the right to refuse participation or withdraw from the study at any time. Furthermore, we provided participants with detailed information about how the anonymity of their data was ensured. In particular, a nickname system was adopted to allow students to participate without disclosing their name or student ID in the survey. Following this, a link to the anonymous online survey was distributed to the participants. We left the survey open for 12 weeks, until the number of episodes gathered aligned with previous works adopting online qualitative surveys (e.g. Morrison *et al.*, 2023). Two researchers were available throughout the study period to answer participants' questions.

We used a convenience sample of respondents with precise characteristics: they had to either possess/use a VCA or have a close relationship with someone who owned/used one. To facilitate the selection of subjects with these characteristics, we focused on master's students. Master's students are young adults who express greater trust in AI (Revieve, 2021) and are more likely to possess and use a VCA, being potentially relevant VCA users in the short and long term (Statista, 2024). Therefore, focusing on master's students enabled us to collect the data more efficiently and capture a point of view that is particularly relevant to technology companies.

We collected a total of 185 episodes from 149 respondents. The total number of episodes was greater than the total number of respondents because some of the respondents, following the instructions they were given, wrote more than one episode of a negative relationship they or someone close to them had with a VCA. We, therefore, considered each episode as an independent single entry even though it was described by the same respondent. During the analysis process, 54 episodes were deleted from the sample because they were inconsistent with the task participants were asked to perform (e.g., reporting a computer-mediated communication with human operators rather than interactions with VCAs). Specifically, some respondents did not address a negative interaction (but positive ones) or talked about a different technology instead of VCAs (e.g. virtual influencers). The final sample resulted in a total of 131 episodes (one-fourth of them vicarious) from 110 European respondents (73 females; M_{age} = 22.3 years, min = 21, max = 24). Despite the exclusion of some episodes, we assessed the data saturation (Thomson, 2011) in the first step of the coding; indeed, within the 131 episodes that we analyzed, the topics described by respondents became more and more conceptually repetitive, and no new topic emerged (McCracken, 1988). Therefore, we considered it unnecessary to conduct additional data collections.

3.2 Data analysis

Considering the explorative nature of our study, we adopted a grounded and inductive approach for the coding process (Corbin and Strauss, 1990). Analysis of the responses required three coding steps, following the procedure outlined by Gioia *et al.* (2013). At each step, two of the authors worked closely together, comparing and discussing the coding structures to ensure that a consensus was reached regarding the number of codes and their definitions before moving on to the next step (Tienken *et al.*, 2023). Details about the management of the coding process in terms of agreement between coders in each step can be found in Appendix 2.

In the first step, open coding, we read the responses line-by-line and examined them at a level of analysis that was as close as possible to the participants' original phrasing. In this phase, we identified 20 first-order codes.

In the second step, axial coding, we moved to a higher level of abstraction by grouping first-order categories based on prior research on human–computer relationships (Alo *et al.*, 2025; Hoffman and Novak, 2018; Puntoni *et al.*, 2021) and interpersonal relationships (e.g., Spitzberg and Cupach, 2002). This process led to the identification of ten second-order themes.

In the third step, proposition generation, we compared consumers' narratives with the literature on negative human social roles, grouping the second-order themes into five final dimensions. Each dimension represents a distinct negative VCA social role. For example, the dimension "VCA as a stalker" was identified because the second-order themes "Surveillance" and "Data collection effects on resource/affective health" share several similarities with the experiences of individuals who are being stalked (Spitzberg, 2002). We further relied on the social negativity framework (Brooks and Dunkel Schetter, 2011) to organize the social roles and better understand and explain their nature and the issues behind each role.

The grouping process that led to the identification of these five final dimensions is illustrated in Figure 1.

4. Results

The respondents reported a wide range of negative episodes involving both personal VCAs and customer service VCAs. This shows that the domain of social roles can interest both types of VCAs.

From the analysis, five VCA social roles emerged: dealer, diminishing partner, enemy, annoying acquaintance, and stalker. Each role corresponds to a combination of dimensions of the social negativity framework (Brooks and Dunkel Schetter, 2011). In the next section, we describe each role in detail; provide preliminary evidence about the context in which the role manifests and its effects on the consumer; and report HCI and interpersonal relationship literature to support the findings.

4.1 VCA as a dealer

A VCA perceived as a dealer is an important entity in the consumer's life, albeit one with negative implications. The themes that emerged from the data revolved around the salience of the VCA and its ability to influence the consumer's mood, as a respondent reported:

> I personally do not have electronic assistance tools at home while some of my friends have already owned them for some years, and very often only when I am at their home I can understand the real bond that is established between real people and the synthetic voices of these voice assistants.

Another theme was the perceived threat to the personal sphere. Respondents fear that the VCA can damage their life and interpersonal relationships, making them lose their "traditional" lifestyle and reducing their interaction with their loved ones:

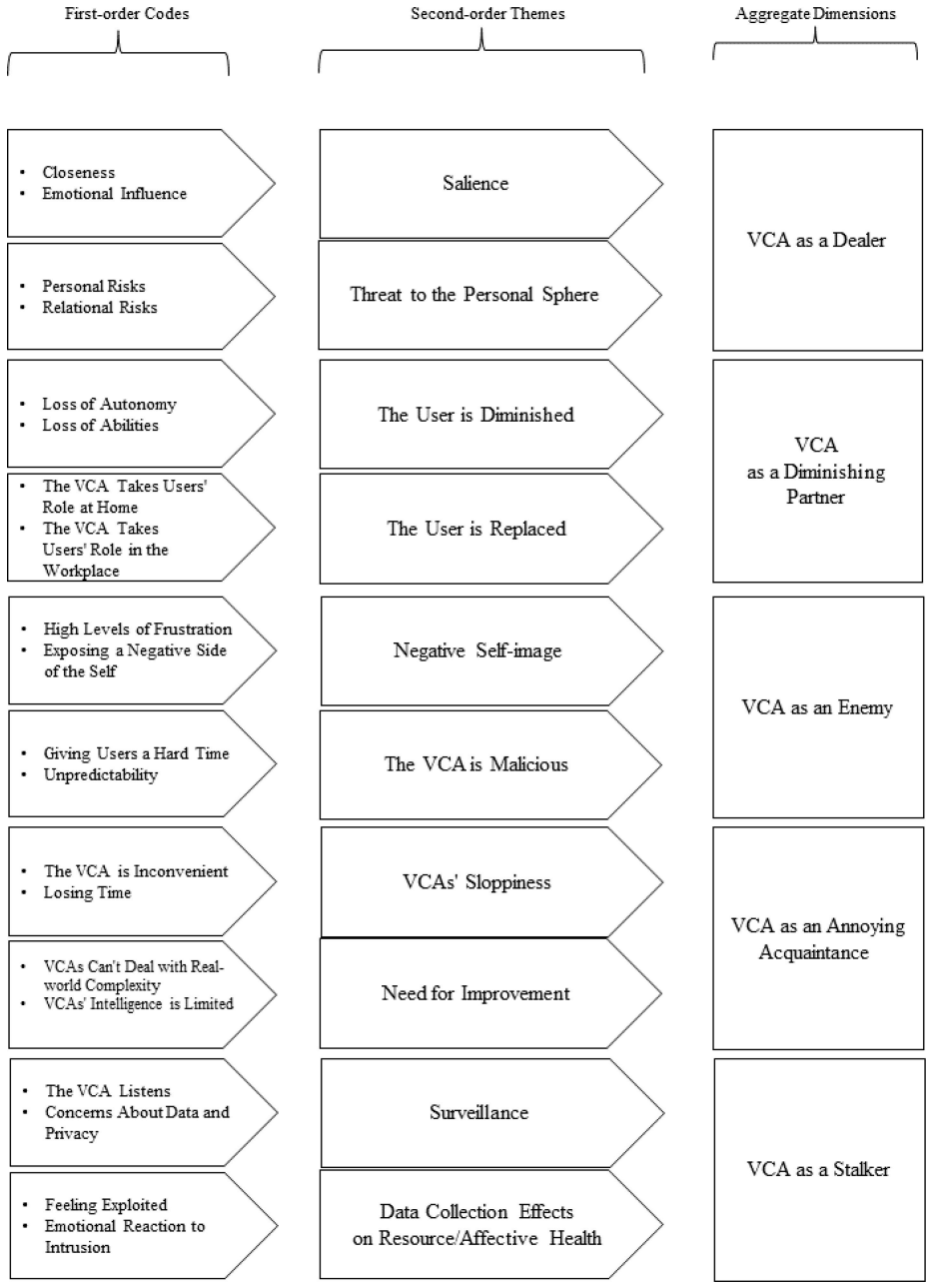

Figure 1. Coding structure
Source: Authors' own work

> I don't believe in the utility of this technological device because it could become a mean to escape from the real world, the real human presence, and the authenticity of human relationships that could never be replaced by a machine.

Most of the reported experiences were vicarious. This is consistent with the literature about addiction and maladaptive relationships, which asserts that individuals may deny, minimize, or not be aware of the issues they are experiencing (Pickard, 2016; Young, 2007).

In terms of social negativity dimensions, the dealer role reflects the dimensions of interference and insensitivity (Brooks and Dunkel Schetter, 2011). Indeed, the VCA can hinder and limit users' potential, needs and goals in terms of social abilities and social ties.

This role involved mainly personal VCAs, and the timing at which the VCA reveals its dealer role can vary. When observing the role from the outside, consumers can quickly become suspicious about the consequences the VCA may have on users' lives; in the case of direct experiences, this dark side can emerge after several weeks. Furthermore, the dealer role manifests in situations in which consumers are arguably more vulnerable (e.g., loneliness). To deal with this role, consumers may put some limits on the usage of the VCA or even end the relationship. Moreover, the narrators of the vicarious experiences developed negative attitudes toward the VCA.

These results are consistent with previous findings that explore how users interact with VCAs in a way that resembles a human-like relationship (Xie *et al.*, 2023) or engage with them to cope with vulnerabilities (e.g., loneliness) to the point of becoming addicted (Marriott and Pitardi, 2024). Also, the threat of user–technology relationships on social abilities reflects previous findings as well (Kim and McGill, 2025). Our results also echo what the psychology literature says about addiction. The importance of the object in everyday life (Griffiths, 2005), the idea of being more prone to engage in a maladaptive relationship in situations of vulnerability (Marlatt *et al.*, 1988; Young *et al.*, 2007), and the negative effects on the interpersonal network (Griffiths, 2005) are well-reported effects of substance, object or behavioral addictions. Therefore, we refer to this social role as the dealer role.

4.2 VCA as a diminishing partner

VCAs can also act as diminishing partners, forcing consumers into a stagnant relationship in which their individual capabilities are limited. In this scenario, consumers are led to feel diminished or reduced: in other words, they become "less" by interacting with the technology. While a VCA does not prevent the achievement of specific, functional goals, it may block individuals from attaining a sense of self-fulfillment and realization. Indeed, respondents were afraid that using VCAs could make them delegate too many (mostly basic) tasks to the point of becoming lazy and incapable of doing things as they or previous generations used to, eventually losing autonomy:

> I used very little this product [Alexa] because basically when I need to bake a cake I prefer to flip through the pages of my recipe book as well as when I have to turn the light on or off I like to think I am still able to make these small daily gestures, without feeling lazy enough to ask a machine to do it for me.

Although the diminishing partner role deals mainly with functional activities, identity-related issues are also present. In particular, some respondents were afraid of being replaced by a VCA:

> Anya [a secretary] […] was happy with Alexa's arrival [in the office] but as the days went by Anya felt replaced by Alexa.

In terms of social negativity dimensions, the diminishing partner role reflects the dimensions of interference and insensitivity (Brooks and Dunkel Schetter, 2011). Indeed, the VCA can hinder and limit users' potential, needs and goals not in a utilitarian sense but in terms of abilities and self-efficacy.

This role involved mainly personal VCAs and can emerge early in the consumer–VCA relationship. Indeed, some consumers expressed concerns after only using the VCA a few times. The realization of losing autonomy emerges primarily through using the VCA, while concerns of being replaced tend to emerge in specific situations in which consumers' identities are threatened. Some consumer reactions can be avoiding buying a VCA (if they have used someone else's device previously) and limiting its usage in a way that does not threaten their abilities or identity.

These results echoes previous evidence about technology consumption. Past literature has argued that interacting with smart objects can make users "diminished or become less" (Hoffman and Novak, 2018) and that delegating to technology can lead to the loss of skills and/or make consumers feel replaced (Puntoni *et al.*, 2021; Valenzuela *et al.*, 2024). Existing research has also emphasized the idea that people can be resistant to technologies that interfere with activities that are relevant to their identities (Leung *et al.*, 2018). From a relational perspective, the concepts of dependence and loss of autonomy, skills, and resources resonate with research on coercive control in interpersonal relationships (Stark, 2012). As the use of VCAs can make individuals lose skills and threaten their identity, we refer to this role as the dimishing partner role.

4.3 VCA as an enemy

A VCA in the enemy role acts maliciously as a rival or opponent that goes against consumers. The VCA behaves unpredictably and sabotages consumers in functional and non-functional interactions. For example, a malicious VCA can activate itself and perform tasks without input or not perform tasks when asked, as in the case of this respondent's father:

> The voice assistant started giving him [respondent's father] problems, i.e. He [the voice assistant] started dialing numbers without anyone telling him. […] My father was forced to deactivate the vocal assistant he had so much praised.

Another theme characterizing this role is the ability of the VCA to make consumers experience frustration and show the worst aspects of their self-image. It is what happened to one of the respondents when interacting with a mobile company VCA (i.e., Vodafone's TOBi):

> I lost my self-control over what I thought was an issue that I would resolve in five minutes, so I accused TOBi and Vodafone of being a company of thieves for increasing my offer without giving me notice. After this statement of mine, which in retrospect I consider quite excessive, TOBi offered me the opportunity to connect with an operator, who contacted me within a few minutes. […] Am I satisfied with TOBi's service? I would say no, because it made me quite nervous by sending me the same link several times in a row.

In terms of social negativity dimensions, the enemy role reflects the dimensions of interference and conflict (Brooks and Dunkel Schetter, 2011). Indeed, the unpredictable and sabotaging behaviors of the VCA can hinder users' functional goals and interfere with more profound issues, such as users' identity. Also, in this role, there is a component of conflict, which can result in users' expressions of anger or intense negative emotions.

The enemy role emerged in relation to both personal and customer service VCAs. In terms of context, for customer service VCAs, the role can manifest from the first interaction, which is often related to the service. For personal VCAs, instead, the enemy role can emerge

in a broader range of contexts. Though the timing can differ, the enemy role can emerge quite early in the relationship, either as a result of a single episode or after a series of unpredictable behaviors.

Consumers can develop negative emotions and attitudes toward the VCA in response to the enemy role. In the case of customer service VCAs, consumers may respond by interrupting the interaction, asking for a human operator, or even ending their relationship with the brand the VCA represents. In response to personal VCAs in the enemy role, consumers can stop using the VCA and regret buying it or change how they use it. For example, after Alexa disturbed his grandfather with unpredictable activations, one respondent changed Alexa's location in the house.

The evidence of the enemy role echoes previous anecdotal evidence about the unpredictable behaviors that VCAs can perform (Lee, 2018), as well as scientific evidence about customer aggression in customer service (Huang and Dootson, 2022). More importantly, the enemy role highlights the importance of perceived control when dealing with innovative technologies (Zafari and Koeszegi, 2021). From a relational point of view, elements such as the unannounced, nebulous and enigmatic nature of VCAs, as well as their ability to elicit negative emotions and self-image, echo the research about enmity (Wiseman and Duck, 1995). Therefore, we refer to this role as the enemy role.

4.4 VCA as an annoying acquaintance

When a VCA is perceived as an annoying acquaintance, it shows its limited intelligence to the consumer. It may not perform the tasks requested, or the consumer may question whether using the VCA is the most efficient solution. Consumers also judge the limits of VCAs based on the perceived smartness of the technology and the ability to understand complex situations and requests. While VCAs may be recognized as useful for standard customer service situations, consumers often prefer human service providers for more complex issues. For example, one respondent reports:

> When I have to do something on my iPhone, like calling someone, opening an app, or whatever it is, I find doing it myself quicker and more immediate. Using Siri, on the contrary, actually take me more time.

Consumers realize that VCAs needs improvement, as they are limited to performing a predefined set of tasks and requests:

> I find [Siri] still limited and unusable in most situations. I believe that a vocal assistant like Siri […] is affected by the problem called "the last mile"–creating a product/service that is innovative, useful, and curious, but that in everyday reality is affected by more or less serious problems that compromise its use. […] If the question [to Siri] is partly complex as, for example, made up of several questions or sentences that escape the algorithm, there will be no answer at all.

In terms of social negativity dimensions, the annoying acquaintance role reflects the dimension of interference (Brooks and Dunkel Schetter, 2011). Indeed, because of its limited smartness, the most relevant aspect of the annoying acquaintance is its ability to hinder and limit users' goals, especially the functional ones.

The annoying acquaintance role can appear across both personal and customer service VCAs. For customer service VCAs, it may emerge after just one interaction. Personal VCAs can also be judged negatively early because of perceived limitations. Some consumers experience an initial "wow effect" from the VCA's innovative abilities. However, this quickly fades as the VCA's limited usefulness in daily life becomes apparent.

This role is less intense than others and causes milder consumer reactions. Customer service VCAs may trigger negative emotions and attitudes toward the VCA and the brand represented by the VCA. For personal VCAs, consumers may also deactivate the VCA, decide not to buy one (if they had previously used someone else's VCA), or have low motivation to use it. However, consumers may still use the VCA when they perceive a clear utility value (e.g., while driving).

The annoying acquaintance's evidence echoes previous findings about the emotional impact of service failure, which has identified annoyance and frustration as common responses (Harrison-Walker, 2019). Annoyance has been found to be one of the possible emotional reactions that users can have when dealing with chatbots (Gkinko and Elbanna, 2022). However, it can also be found in interpersonal relationships, such as in the presence of sloppy behaviors (Laak *et al.*, 2003). As the relationship between acquaintances is defined as a weak relationship with limited contact and familiarity (Shah and Jehn, 1993), we refer to this social role as the annoying acquaitance role.

4.5 VCA as a stalker

VCAs can also be seen as stalkers, creeping into individuals' private lives, taking actions that are neither requested nor authorized and listening when they are not supposed to. This role revolves around privacy issues that cause the VCA to be perceived as intrusive. As a respondent reports:

> "What is wrong with having Alexa in our house?" he asked me. My first answer was that I do not feel safe knowing that there is a stranger in my house who can listen to me and my conversation, or even talk to me.

Respondents expressed uncertainty about how their privacy and data are handled, feeling concerned about the possible negative consequences of using VCAs:

> According to the law, virtual assistants are not allowed to record or save any information without authorization. Nevertheless, this can have a bad impact on individual privacy, because if the system was violated, a lot of unwanted information would be spread, causing serious damage.

In terms of social negativity dimensions, the stalker role reflects the dimension of insensitivity (Brooks and Dunkel Schetter, 2011). Indeed, the VCA as a stalker is perceived as an entity that collects data and, in this process, is outside the user's control. Therefore, VCAs can express a neglect of users' needs and desires, connected to their data.

Stalker episodes mainly involved personal VCAs and showed that this role can emerge abruptly. A single incident (e.g., the VCA activating by itself), or the mere realization that the VCA's microphone is always active, can make consumers quickly perceive that their privacy is at risk and make them reflect on the imbalanced trade-off between utility and data collection. Sometimes the risk perception comes after actual usage of the device. Other times, the consumer is skeptical and perceives the threatening potential of the VCA from the start of the relationship. Besides developing negative emotions or attitudes toward the VCA, respondents also reported some coping strategies, such as deactivating the VCA microphone, stopping using it, or deciding not to buy one (if they had previously used someone else's VCA).

Those results are consistent with past findings about how privacy risks and concerns may influence consumers' perception and adoption of AI-powered products and services (Ding *et al.*, 2024; Puntoni *et al.*, 2021). They also echo existing evidence about the complex trade-off between the benefits of personalization and privacy issues (Aguirre *et al.*, 2016; Van den Broeck *et al.*, 2020). From a relational point of view, the concepts of unwanted invasions of

privacy (Mullen *et al.*, 2000; Spitzberg and Cupach, 2002), implicit threats (Logan, 2022), and negative emotional reactions (Spitzberg, 2002) echoes the literature on stalking. Therefore, we refer to this social role as the stalker role.

5. Discussion

Through an explorative qualitative study, we identified five negative social roles that can be attributed to VCAs: dealer, diminishing partner, enemy, annoying acquaintance, and stalker. When the VCA is perceived as a dealer, it raises concerns about its impact on social interactions; as a diminishing partner, it raises concerns about losing abilities, autonomy, or being replaced; as an enemy, it is unpredictable; as an annoying acquaintance, it appears unintelligent, leading to poor interactions; and as a stalker, it raises privacy concerns. An overview of the findings is represented in Figure 2.

Looking at the social negativity framework (Brooks and Dunkel Schetter, 2011) helps to understand the differences between several roles. Indeed, while some roles share several aspects, their nature differs in substantial ways. For example, the roles of dealer and diminishing partner express themselves through similar behaviors. As they both navigate into the domain of insensitivity and interference, they both neglect users' needs and hinder users' goals. However, they do differ in the type of goals and needs they interfere with. In particular, while the dealer interferes with social needs and abilities, the diminishing partner interferes with more pragmatic and intellectual abilities that can be linked to self-efficacy. Another dichotomy of roles that shares relevant features is the one composed of the enemy and annoying acquaintance roles. Both roles deal with their inability to perform correctly, as they are both connected to the interference dimension of the social negativity framework. However, while the annoying acquaintance role does not interfere with other social dimensions, the enemy role has a more profound level of sabotage that can interact with users' image and identity, potentially resulting in the expression of conflict. As a matter of fact, users' reactions to the two roles differ as well. In the annoying acquaintance realm, users usually express mild negative reactions. However, when the VCA is perceived as an enemy, users can have intense reactions like frustration and anger.

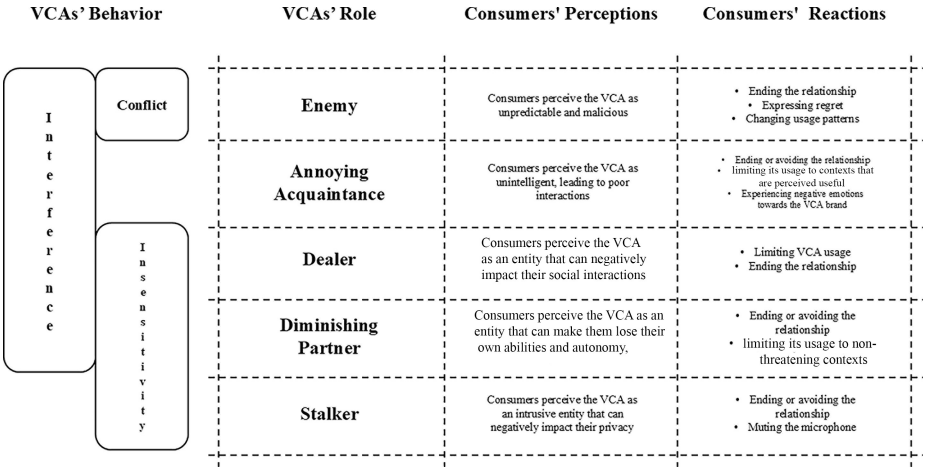

Figure 2. Overview of the results
Source: Authors' own work

It is interesting to note that, beyond these differences, the nature of the roles also differs in terms of whether they manifest during the interaction itself or through its implications. The annoying acquaintance and enemy roles, in particular, express themselves mostly in the interaction. Indeed, those roles also involve customer service VCAs, which arguably deal mostly with isolated interactions. On the other hand, the stalker, the dealer and the diminishing partner roles manifest not through the interaction itself but more through the implications of these interactions. The diminishing partner is the perfect example of this process; when the VCA is a diminishing partner, the interactions themselves are typically successful. Ironically, it is this success that is the issue, as it can lead to a loss of abilities, autonomy, and even identity for the consumer.

5.1 Theoretical contributions

This study contributes to the literature on consumer–VCA relationships in three ways. First, this study enriches extant literature on VCA social roles by identifying five distinct negative roles – dealer, enemy, annoying acquaintance, diminishing partner, and stalker. Our findings expand the spectrum of negative VCA social roles. Until now, this spectrum has consited of the broad role of the master, identified by VCA users (Novak and Hoffman, 2019; Schweitzer *et al.*, 2019), and four roles that non-users anticipate for the broader category of smart objects (Querci *et al.*, 2024). By shedding light on several roles, each one with its peculiarities, we demonstrate that the nuanced nature of negative relationships, which is present in the interpersonal realm (Perlman and Carcedo, 2010), also manifests in the VCA domain. This is consistent with the CASA paradigm, according to which the interactions with computers reflect social schemas (Nass *et al.*, 1994). In that sense, the fact that negative VCA social roles are not solely the result of technological malfunctioning reflects the nuanced nature of consumer–VCA relationships. Indeed, in this research, we provide evidence that correct functioning is not a guarantee against the risk of consumers attributing negative social roles to a VCA. By adopting a relational approach that expands the negative spectrum, we further show that consumers' attribution of negative social roles to VCAs also depends on their interpretation of the relationship, VCA's behavior and how they experience the interaction, even when the technology works properly, as in the case of the diminishing partner.

Second, to focus on negative VCA social roles, this work used the social negativity framework (Brooks and Dunkel Schetter, 2011). Unlike frameworks that have been commonly employed by previous literature on HCI, such as the assemblage theory (DeLanda, 2016) and the interpersonal circumplex model (Kiesler, 1983) used by Novak and Hoffman (2019), and the extended-self theory (Belk, 1988) used by Schweitzer *et al.* (2019), the social negativity framework explicitly centers on the negativity of interpersonal relationships. This distinctive focus enabled us to develop a framework of negative VCA social roles grounded in dimensions specific to negative interactions (i.e., conflict, insensitivity, and interference) rather than in more general, foundational dimensions regulating positive interactions as well, such as communality and agency in the interpersonal circumplex model (Kiesler, 1983). As a result, we provided a more refined analysis, identification, and description of negative VCA social roles.

Also, this work examines the domain of social roles, considering different types of VCAs: personal and customer service VCAs. Past research that examined the domain of VCA social roles focused mainly on personal VCAs (see Appendix 1). This tendency may be connected to the idea that personal VCAs, as their functions entail daily interactions and a broad set of tasks, leave more room for observing their usage from a relational perspective. However, in this work, we provide early evidence that social roles may be expressed by customer service

VCAs as well. Not all relationships, even in the interpersonal involve, deal with everyday interactions, and the same can happen in human–VCA relationships as well, with customer service VCAs expressing negative roles even with limited interactions.

5.2 Implications

This study shows that VCAs can take on multiple, distinct negative social roles. Understanding these roles helps reveal the risks and potential harms consumers may face. The insights from this study may guide practitioners and policymakers in designing strategies and interventions to prevent negative consumer–VCA interactions and their effects.

From the firm's perspective, the implications of this research for product design, communication, and customer relationship management differ based on whether they develop or adopt personal or customer service VCAs. The pervasive presence of personal VCAs in users' everyday lives means that their implications go beyond the mere service failures that are more typical of customer service VCAs. Indeed, personal VCAs expose consumers to a broader range of negative relationships and experiences.

The problems connected to the social roles explored in this study require solutions that deal with several steps of the production and communication process. A communication-based intervention, for example, may concern the isolation caused by the dealer role. Consumers may feel that using VCAs reduces human interaction. To avoid this, companies can promote the use of VCAs to interact with others. An Amazon Echo Show commercial containing the line "I use my all-new Echo Show 8 to catch up with friends" provides an interesting example of such a strategy [1]. For the enemy role, malfunctions, unwanted actions and consumers' reactions are important issues that may be solved through design-based interventions. For example, ensuring the quality of the data and the process of monitoring are some of the possible recommended actions to avoid and/or correct issues in the behaviors of algorithms, such as biases (Jonker and Rogers, 2026).

This work also highlights the potential harm that VCAs can bring to consumers, corroborating policymakers' concerns about the disruptive impacts of AI (e.g. European Commission, 2021), and offers further suggestions to tackle relevant problems like privacy, identity, and well-being. Indeed, our findings and the social role perspective adopted in this work can help policymakers identify critical issues and develop strategies to prevent negative outcomes. For example, West *et al.* (2019) argue that having a diverse and heterogeneous team of developers may limit the presence of algorithmic biases. Policies that promote those types of teams may have an impact on the prevention of VCAs behaviors that are perceived as sabotaging and unpredictable.

5.3 Limitations and future developments

Being an exploratory study, this work has some limitations that leave room for future research. First, the sample consisted of young European adults. Cultural heritage and technological adoption, as well as young adults' high familiarity with VCAs, can influence the perception of VCAs and their social roles. Our study shows that even in a sample of consumers who are highly familiar and own VCAs, such as young adults, it is possible to find a good variety of negative social roles, leaving open the question of whether new negative VCA social roles can be perceived by consumers belonging to a different age range and culture with low familiarity with VCAs. Future research should investigate other cultural and socio-demographic groups.

Second, although this work focused on VCAs, our results can inspire further research on negative roles played by other types of technologies, such as generative AI (GenAI). For example, the phenomenon of hallucination could lead users to perceive GenAI as an

annoying acquaintance, while concerns about skill loss and reduced creativity align with the negative role of the diminishing partner.

Third, the present study adopted a qualitative approach, which is particularly useful for studying complex phenomena in depth. Nonetheless, further qualitative and quantitative research is needed to validate the proposed typology. Future studies should verify whether different negative roles imply different consumption patterns and explore mediators or moderators influencing the impact of negative VCA roles on marketing outcomes.

Finally, this work proposes five different social roles in a static fashion. Although we defined the boundaries of each role and clarified their shared aspects and differences, our data do not allow us to examine the trajectories between roles, which was also a perspective outside the scope of our research. According to Schweitzer *et al.*'s (2019) findings, when the VCA is a master, the relationship is more likely to end than to evolve. However, situational factors (e.g. the presence of VCA in shared settings or the relationship with the brand) or individual factors (e.g., inertia; Samuelson and Zeckhauser, 1988) may lead consumers to keep the relationship alive although negative, leaving open the possibility for the relationship to change while remaining in the negative domain (see Alvarez *et al.*, 2021 for an example in brands). Therefore, taking a cue from the possibility that a negative social role can evolve into another negative one, we can speculate about the potential dynamism of negative VCA social roles. In light of our findings, we speculate that the roles examined in this paper might evolve in several ways. For example, an annoying acquaintance could become an enemy if the VCA threatens or harms consumers' self-image. Another example can involve the diminishing partner role, which is connected with users' loss of abilities: if this loss of abilities also invades the domain of users' social life, the role could pass from diminishing partner to dealer. These paths are not to be considered unilaterally. For example, if users' interaction with an enemy VCA, although problematic, no longer involves self-image issues, the role can change to an annoying acquaintance.

In summary, based on our findings and inspired by our speculations, we call for two possible research directions. The first, broader one, can study different role trajectories that involve both positive and negative roles. In doing that, researchers can take cues from preliminary insights coming from both theoretical and empirical research (Novak and Hoffman, 2019; Ramadan *et al.*, 2021). The second, and less broad, direction is connected to the specific study of trajectories between negative roles, which could be a very interesting and relevant topic to examine, especially in terms of consumer well-being.

Notes

[1.] The Amazon Echo Show commercial mentioned in the article can be found at the following link: www.youtube.com/watch?v=lWL2XazFn74

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Appendix 1. Overview of VCA social roles

Role	Valence	Features	Type of VCA	Main references
Main roles				
Partner	Positive	VCA and users are on the same level, and the VCA works *with* the user. The relationship and interactions are friendly and informal	Personal VCAs	Hartmann *et al.* (2023); Novak and Hoffman (2019); Rhee and Choi (2020); Schweitzer *et al.* (2019); Zhang *et al.* (2024)
Servant	Positive	The VCA is subservient and works *for* the user. The relationship and interactions are formal	Personal VCAs	
Master	Negative	The VCA is perceived as unreliable and outside the control of the user, who feels to be in a subordinate position compared to the VCA	Personal VCAs	Novak and Hoffman (2019); Schweitzer *et al.* (2019)
Less frequent roles				
Companion	Positive	The VCA is perceived as deserving trust from the user and gives users comfort and company	Personal VCAs (users with special needs context)	Ramadan *et al.* (2021)
Caregiver	Positive	The VCA is an integral part of users' lives. Users feel a deep connection with the device, which is perceived to be *for* and *with* the user	Personal VCAs (users with special needs context)	
Stalker	Negative	The VCA is perceived as an intrusive entity.	Personal VCAs (non-users' context)	Querci *et al.* (2024)
Captor	Negative	The VCA is perceived as an entity that can threaten users' psychological and physical health	Personal VCAs (non-users' context)	
Seducer	Negative	The VCA is perceived as a fascinating entity that can be a threat to users' autonomy	Personal VCAs (non-users' context)	

Source(s): Authors' own work

Appendix 2. Details about the coding process

Two authors worked on the coding process (Coder 1 and Coder 2). Both of them were knowledgeable about literature on negative interpersonal relationships (e.g. Spitzberg, 2002) and human–computer relationships (Alo *et al.*, 2025; Hoffman and Novak, 2018; Puntoni *et al.*, 2021) that could help them to identify potential social roles in the text and find relevant themes connected to the research question.

Step 1: Analysis of the responses and open coding

First, Coder 1 and Coder 2 read different subsets of responses line-by-line and independently coded them. Then, Coder 1 and Coder 2 confronted the codes that each one of them produced and discussed potential disagreements. From the discussion, a preliminary list of first-order codes emerged, which was used by Coder 1 to code all the responses while also being open to potential modifications or integration of codes. Once the task was done, Coder 1 provided Coder 2 with the first version of the coding. As Coder 2 reviewed the materials, the coding was discussed, and the coders focused on how to address the parts of the coding where agreement was lacking to ensure a rigorous and reliable coding process (Cheung and Tai, 2023). For example, in one of the early versions of the coding, there was a code called "Relational bond." The relationship of this code with the code "Closeness" caused disagreement between coders because of the closeness between the codes and the difficulties for the coders to agree on their differences. "Relational bond" was supposed to reflect the VCA's relational role in users' life and instances in which the VCA was referred to in social terms. "Closeness" had a broader nature and focused on the concepts of closeness, attachment, and salience. After the coders reviewed the excerpts and discussed, "Relational bond" was merged into the "Closeness" code and eventually removed from the final coding scheme. Another example involved the codes "Concerns about data and privacy" and "The VCA listens" which caused disagreements between coders, as the codes shared some aspects. After reviewing the excerpts and discussing the coding, the coders agreed that the two codes were distinct and better defined their difference: while "Concerns about data and privacy" deals with the concern about the data collection and data management process behind the VCA, "The VCA listens" is more connected to the perception and/or fear that the VCA may actually listen to users' conversations. So, if the first code is more about the implications, the second one is more connected to the symptoms.

When the coders agreed to proceed, the work was presented to the other authors. In that phase, potential integrations or modifications were discussed. Once all the authors agreed on the structure, we proceeded to the second step of coding.

Step 2: Axial coding

The two coders worked together in this process. After a coding structure was developed, they reviewed it independently and searched for new literature that could further develop the structure. If there were new ideas about the development of second-order themes, these were discussed in a new round of revision. When the coders agreed to proceed, the work was presented to the other authors. In that phase, potential integrations or modifications were discussed. Once all the authors agreed on the structure, we proceeded to the third step of coding.

Step 3: Generating propositions

In this phase, the two coders worked together, discussing the identification of possible social roles. After that, they presented the updated structure to the whole working team to discuss changes and new proposals.

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