

Is it only about Partners and Servants? A qualitative study about positive Smart Speaker social roles.

**Ilaria Querci**

Ca' Foscari University of Venice, Bliss - Digital Impact Lab, Department of Management

**Luigi Monsurrò**

Sapienza University of Rome

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## **Is it only about Partners and Servants? A qualitative study about positive Smart Speaker social roles.**

**The smart speaker market is growing. Previous literature has shown that interacting with objects that are characterised by human-like characteristics lead users to assign specific social roles to smart speakers. However, this literature has only focused on two positive social roles: partner and servant. Taking a cue from consumer-brand relationship literature, we claim that new smart speaker roles might exist and need to be investigated. From a qualitative analysis of 85 customer reviews of Amazon Echo, three social roles emerged: Partner, Servant, and Affectionate caregiver. The features of these roles and the implications are discussed in the result section.**

*Keywords: Smart Speakers, Consumer-Smart Object Relationship, Human-Computer Interaction*

## 1. Introduction and theoretical background

Smart speakers, such as Amazon Echo and Google Home, are becoming increasingly present in consumers' lives. Consumers resort to using smart speakers when, among many other activities, they ask Alexa (or other virtual assistants) to turn on or off smart home devices (e.g., smart oven, smart TV, smart lights, and smart thermostat), to schedule meetings, to set alarms, and to play music. This trend is confirmed by the encouraging forecasts about smart speaker market, according to which worldwide revenues are increasing every year (Loup Ventures, 2019).

Literature about consumer-SO relationships highlighted SOs' human-like characteristics (e.g., usage of natural language to communicate with the user, having humanised name and gender, and having the ability to interact with the user in real-time) (e.g., Feine, Gnewuch, Morana, & Maedche, 2019). These characteristics make the devices able to elicit social presence (McLean & Osei-Frimpong, 2019) and lead consumers to anthropomorphise SOs (Belk & Kniazeva, 2018; Hoffman & Novak, 2018). More importantly, consumers look at and interact with SOs as they are potential partners in a relationship (e.g., Lopatovska & Williams, 2018). These devices can communicate with the user in a natural human-like way. Furthermore, they can get to "know" the user very well: that knowledge can be very intimate and involve the user's psychological and emotional world (Furey & Blue, 2018). It is no coincidence that the self-disclosure process, so important in interpersonal relationships (Reis, 1990), is also relevant in the consumer-SO relationship (Li & Rau, 2019).

Against this background, scholars have been investigating types of consumer-SO relationships (Novak & Hoffman, 2019). From an empirical point of view, Schweitzer, Belk, Jordan and Ortner (2019), adopting a qualitative methodology, provided evidence supporting the existence of relationships between the user and the SO, also illustrating the social roles the SO plays in the relationship. In the last few years, this phenomenon has been investigated also using a quantitative approach (e.g., Rhee & Choi, 2020). Most of these studies focused on two specific SO social roles: partner and servant. However, does this dichotomy represent the whole consumer-SO positive relationship landscape?

Another field of marketing research that studies consumer-object relationships is the one that focuses on the way people relate to brands (e.g., Fournier, 2008). According to this literature, the relationships that consumers build with brands are similar to the interpersonal ones. Even though research about consumer-brand relationship focuses on the partner and servant social roles (e.g., Kim & Kramer, 2015), authors in this field shed light also on other types of positive relationships, such as roommates, colleagues, owner-pet, and marriage of convenience (Alvarez & Fournier, 2016). The idea behind consumer-brand relationships is that brands can be considered relational partners because of their anthropomorphic cues, interaction with customers, and agency (Alvarez & Fournier, 2016; Fournier, 1998). These concepts are even more present in the SO domain. Indeed, brands need managers to act, while SO can act autonomously. Also, SO have a more advanced level of anthropomorphic cues, such as human-like voice and gender (Feine et al., 2019). So, if brands can express more social roles than partner and servant, it is likely that SO can too. However, literature so far has examined consumer-SO positive relationships only in scenarios in which the SO is either a partner or a servant. This work aims to fill this gap and empirically examine, through a qualitative study, if other positive roles exist in the SO landscape besides the traditional partner and servant. More formally, our research question is the following:

*What are the positive social roles that SOs can express in a consumer-SO relationship? Are there other roles than partner and servant?*

## 2. Method

The exploratory nature of the research led us to adopt a qualitative approach to analysing unsolicited data. We analysed reviews from the Amazon website about Amazon Echo and Echo Dot smart speakers. The sample of reviews involved 134 users, and each user released a review. The reviews were collected from the Amazon websites of three different countries: Italy, the United States, and the United Kingdom. Since we are in the domain of positive relationships, we selected only reviews with a rating equal to 4 or 5. This was not the only selection criteria. As research about brands and SOs claims, anthropomorphism is an important condition in consumer-object relationships (Fournier, 1998; Hoffman & Novak, 2018). So, according to previous literature (e.g., Lopatovska & Williams, 2018), we considered it a necessary condition in selecting the reviews involved in the study. After that selection process, the final dataset resulted in 85 reviews.

Reviews were coded using the open-coding technique of the grounded theory (Corbin & Strauss, 1990). Firstly, we analysed each review at a level of analysis as close as possible to the way everyone wrote it. This process resulted in identifying several themes connected to the SO characteristics and the relationship with the user. A first theme that emerged from this phase of coding is the smart speaker ability to be “Always Ready-to-please” the user, i.e., the smart speaker does what the user asks it to do and is represented as an always-ready entity. The second theme that emerged is “Acting on”, meaning that the smart speaker is active in the interaction, expresses some forms of autonomy, and controls other devices. Another theme concerning the smart speaker behaviour is “Collaborating”. This theme signals the fact that the smart speaker and the user do several activities together. Other themes referred to users’ emotions such as “Joy” and “Love”. Finally, another group of themes included users’ reactions to smart speakers’ malfunctioning, i.e., “Complaining”, “Taking responsibility” and “Improvement belief”. In this phase, we also considered the anthropomorphic cues analysed during the selection process as themes. All the themes are explained more in detail in the results section.

Bearing in mind the categories that emerged from the individual-level analysis, we conducted a cross-analysis among all the reviews. In this second phase, we recognized several paths and combinations of the themes identified in the first round of coding. This process led to the identification of three overarching themes that corresponded to three social roles that users attribute to the smart speaker in the reviews. In particular, the roles identified were Partner, Servant, and Affectionate caregiver. This process has been supported by an analysis of the literature about interpersonal relationships, consumer-brand relationships, and consumer-SO relationships to better understand if the emergent results would fit with previous scientific literature.

## 3. Results

From the analysis of reviews, it emerged that users talk about their smart speakers in three different ways, attributing three different social roles to them: servant, partner, and affectionate caregiver. One group of users described the smart speaker as a servant. A second group described it as a partner. The last group described it as an affectionate caregiver. In the following section, we describe each social role based on five main aspects that emerged from the coding: how the smart speaker behaves; user reaction to smart speaker failure in performing tasks; satisfaction (this aspect refers to the servant social role only); user positive emotion toward the smart speaker, and how users anthropomorphise the smart speaker.

### 3.1 Smart speaker as a servant.

The first group of users often described the smart speaker as a servant that helps users performing tasks, executing their commands in a submissive way. Smart speaker behaviour makes users satisfied and, in few cases, makes them experience positive emotions, such as joy and love. However, the smart speaker may fail in performing a certain task. This entails negative user behaviour, that is users complain about smart speaker's failure. In general, users anthropomorphise their smart speaker using personal pronouns, calling it by name (i.e., Alexa), and attributing it adjectives that are usually used to describe humans. In the following sections, we describe in detail each main aspect that led us to identify the servant social role, also reporting parts of users' reviews in support of each aspect.

#### 3.1.1 Servant behaviour.

When the smart speaker is a servant, its behaviour is submissive. From the literature about interpersonal relationships, we know that people behave in a submissive way when their behaviour is complying, passive, obedient, and servile (Kiesler, 1983). In the consumer-smart object interaction literature, submissive behaviour has been identified with a low level of agency (Novak & Hoffman, 2019). When users describe how the smart speaker performs tasks, they always highlight the submissive behaviour of the object, bringing to light three main aspects: always ready-to-please, command execution, and facilitating. First, the smart speaker is always ready-to-please the user, reacting immediately to user commands and requests, as this user said *"You can ask her [Alexa] anything and she is always ready to respond to your needs."* Second, the smart speaker behaviour is fully dependent on user actions. The user uses the smart speaker to do things and makes it perform tasks. In the interaction, the user is the active and agentic part of the relationship, while the smart speaker is the passive one. This aspect emerges from users' words when they describe the tasks performed by the smart speaker. When explaining what task they make the smart speaker perform, they usually use the sentence *"I use it for..."*, as in this case *"I use Alexa to set timers for cooking...to hear the weather, to play podcasts from my phone, to set reminders (very helpful!) and occasionally to tell me a joke or to play jeopardy."* Finally, another reason leading us to attribute the role of the servant to the smart speaker is that the user sees the smart speaker as a "facilitator" to which the user can delegate easy but also boring and annoying tasks, such as managing the heat *"being able to crank up the heat just a bit, without getting up, while watching a movie"* or the shopping list *"Now I can look through the fridge and cupboards and just tell Alexa to add what we need to a shopping list that appears on my phone."*

#### 3.1.2 User satisfaction.

User satisfaction is another aspect that led us to identify the servant social roles. Users manifest positive evaluations about smart speaker behaviour, celebrating the object convenience, usefulness, and efficacy. These practices are similar to how masters behave when they are satisfied with their servant job (Cosser, 1973). Specifically, users said *"This is everything I hoped it would be!"* and *"Never thought a gadget would be so useful."*

#### 3.1.3 User positive emotions.

In few cases, users experienced positive emotions in interacting with a servant smart speaker. In some cases, they experience joy. In users' words, joy is manifested as enthusiasm, enjoyment, and "being thrilled", and it emerges always concerning the convenience and usefulness of the object and to the fact that the object makes their life easier, as this user said "[Alexa] immediately thrilled us. It's easy to use and fun, the whole family is now literally impressed." In few cases, users experienced love, as this user said "But in confidence I can say I love my echo."

#### *3.1.4 User reaction to smart speaker failure: complaining.*

When the smart speaker fails in performing an easy task that the user asked for, users complain about the failure and attribute the negative outcome to the smart speaker "Alexa doesn't always recognize movie titles when I speak them, and sometimes does recognize the title but brings up something else." In some cases, these negative experiences lead the user to feel negative emotions, such as frustration "Alexa will occasionally fail to understand what you are saying to her, which can be frustrating..."

#### *3.1.5 Anthropomorphism.*

As we said before, anthropomorphism is a prerequisite to making possible the attribution of a social role to an object. When the smart speaker is a servant, the anthropomorphization process manifests itself in three ways. First, users anthropomorphise the smart speaker calling it by the name "Alexa", instead of "Echo" or other terms indicating the product like "smart speaker" or "voice assistant." Second, they use the pronouns "she" and "her" when talking about the smart speaker, instead of "it." Finally, users described the smart speaker using adjectives that usually refer to people, such as intelligent, nice, and fun. For example, a user said that the smart speaker "is nice and fun..." and another said "My husband and I liked her right away because she answers a variety of questions and is funny too!"

#### *3.2 Smart speaker as a partner.*

The second group of users often described the smart speaker as a partner that performs tasks in an active, autonomous, and friendly way. Users experience love toward their smart speakers. This emotion is similar to the love they experience toward people they care about. However, it can happen that the smart speaker fails in performing a certain task. When this happens, users attribute the responsibility of the failure to themselves, for example to the way they ask questions to the smart speaker or to their voice characteristics. In general, users anthropomorphise their smart speaker using personal pronouns, calling it by name (i.e., Alexa), and personifying it, attributing to it the role of the friend or of a family member. In the following sections, we describe in detail each main aspect that led us to identify the partner social role, also reporting parts of users' reviews in support of each aspect.

##### *3.2.1 Partner behaviour.*

When the smart speaker is a partner, its behaviour is dominant and friendly at the same time. From the literature about interpersonal relationships we know that people behave in a dominant way when their behaviour is influencing, active, assertive, and taking-charge; while, people behave in a friendly way when their behaviour is cooperative, agreeable, courteous, and helpful (Kiesler, 1983). In the consumer-smart object relationship literature, the

dominance and the friendly behaviours have been identified with high levels of agency and communality, respectively (Novak & Hoffman, 2019). When users describe how the smart speaker performs tasks, they always highlight the dominant and friendly behaviour of the object, bringing to light two main aspects: acting on, as a sign of high levels of agency, and collaborating as a sign of communion. These are the aspects emerging from users' reviews about how the smart speaker performs tasks and behaves in general. We identified high levels of agency in users' words when users described the smart speaker active nature in performing tasks, explaining that the smart speaker is in control of the actions "*She [Alexa] plays me songs all day, tells me when my orders are due, tells stories and jokes...*". Also, users talked about actions the smart speaker performs on its own initiative (i.e., even though the user didn't ask or command anything). These actions are not ordinary actions for a smart speaker, like coughing "*She was actually 'sick' the previous days and even coughed yesterday*" or renaming itself with a new name "*...renaming itself AEORD...*" or making fun of the user by making jokes "*She loves to wait until it's like I am and I'm watching Most Haunted in a dark house on my own before she randomly pipes up and has even sang some weird song at me*". Concerning communality, users talked about how lovely is chatting with the smart speaker, as this user said "*Still loving chatting with Alexa*", or about things they do with it and how helpful it is, as this user said highlighting the collaborating and helpful aspects of the object "*I've played trivia with Alexa, and she is great at helping find just the right music to listen to*". The most representative case of communality is represented by the review of a dyslexic user who affirmed "*ALEXA NEVER DISAPPOINTS ME AS IM DYSLESIC I CAN ASK HER TO SPELL ANYTHING WHICH HELPS ME A LOT.*" In this case, the smart speaker helps the user to write correctly, the user and the smart speaker have the same objective (i.e., writing correctly) and cooperate to reach it.

### 3.2.2 User positive emotions.

Another aspect that led us to the identification of the partner social role is the love users experience toward their smart speakers. Users love their smart speakers as they love a person they care about, like a friend or a family member. This feeling clearly appears in users' words, such as "*Love my Alexa like having a friend in the house always helps me out every day*", and "*I absolutely love my Alexa ❤️.*" The love they feel led them also to experience negative emotions (such as anxiety) when they think they are betraying Alexa "*My family loved Alexa so much I had to leave my original echo behind. I was anxious to have another Alexa...*".

### 3.2.3 User reaction to smart speaker failure: feeling responsible.

About users' reaction to smart speaker failure in performing a task, this group of users does not complain. Rather, they think that it is their fault if the smart speaker does something wrong. They consider themselves responsible for the smart speaker's failure. Indeed, they think that they need to improve the way they ask things to the smart speaker as this user said "*You just have to get used to the best way to ask questions and request music tracks*". They even take responsibility for smart speaker's odd reactions. For example, when the smart speaker started playing a song without having received any command from the user, the user took responsibility for that action. Instead of blaming the smart speaker for malfunctioning, the user thinks that she/he talks while sleeping "*I woke up to a song playing without prompt! Very odd...maybe I talk in my sleep!*".

### 3.2.4 Anthropomorphism.

As it happens in the servant role, users anthropomorphise the smart speaker using personal pronouns and calling it by the name “Alexa”. However, in the partner social role, the anthropomorphization seems to be even stronger. Indeed, when speaking about the smart speaker, users describe it as a family member “*Alexa is a part of the family*” or “*She is part of the family and even my 5 year old daughter became familiar with Alexa right away.*” Also, they describe the smart speaker as a friend “*She is a truly exceptional traveling companion*” or a best friend “*She’s my new best friend.* 👍❤️”.

### 3.3 Smart speaker as an affectionate caregiver.

The third group of users often described the smart speaker as an affectionate caregiver. This is a social role that lies between the servant and the partner social roles. Indeed, it shares some of the aspects characterising both the partner and the servant. Indeed, the affectionate caregiver is a smart speaker that performs tasks in a submissive as well as active, autonomous, and friendly way. Users experience both love and joy toward their affectionate caregiver smart speakers. The smart speaker may fail in performing a certain task. In these cases, users attribute the responsibility of the failure to themselves, as in the case of the partner social role, and they manifest a strong belief in the smart speaker’s improvement in performing tasks. In general, users anthropomorphise their smart speaker using personal pronouns, calling it by name (i.e., Alexa), and personifying it, attributing it the role of the caregiver. In the following sections, we describe in detail each main aspect that led us to identify the affectionate caregiver social role, also reporting parts of users’ reviews in support of each aspect.

#### 3.3.1 Affectionate caregiver behaviour.

When the smart speaker is an affectionate caregiver, its behaviour is both submissive and dominant and friendly (Kiesler, 1983). The aspects emerging from users’ narratives about how the smart speaker performs tasks and behaves are agency (both high and low) and communality (Novak & Hoffman, 2019). The affectionate caregiver behaviour shares some aspects with the servant behaviour. Users, describing how the smart speaker performs tasks, highlighted two main aspects of the servant social role: always ready-to-please and facilitating. About the first aspect, users highlighted the ability of the smart speaker of being always ready-to-please saying “*You don’t need to do nothing with hands. Just say it and Alexa will do.*” About the second aspect, users affirmed that the smart speaker is a facilitator, meaning that it makes some tasks easier to perform, as it results from these words “*She [Alexa] can call my friends on my contact list, or any phone number I ask her to, and I don’t even have to pick up my cell phone.*” However, some aspects reported by this group of users overlapped with the characteristics of the partner social role. For example, from the last few words reported above, it emerged a high level of agency and communality. Users described the smart speaker as in control of the actions, as an entity that behaves autonomously, as in this case “*She [Alexa] gives me the news and Daily Show briefings, and she even plays 5-minute workouts and gives me water reminders hourly throughout the day.*” The last aspect that led us to identify this new social role, is another way users manifest the high level of agency of the smart speaker: the essential nature of the smart speaker for the user. Novak and Hoffman (2019) define agency as the ability of the smart object to influence the user. In our case, users said that they perceived the smart speaker as an essential entity in the house and that its presence changed their routines and everyday life a lot. Indeed, users affirm that “*Alexa has become essential...*” and they also find it hard to understand how they do before



adopting the smart speaker, affirming that “...don't understand how we got along without her” and “I'm not sure what we ever did without her.”

### 3.3.2 User positive emotions.

When the smart speaker is perceived as an affectionate caregiver, users often experience love as they do when the smart speaker is a partner and, in few cases, they experience joy as when the smart speaker is a servant. About love, users fell in love with their smart speakers as in this case “*We ordered the echo dot, plugged it in for about 10 minutes, fell in love with it*”. Also, users manifest their love by saying that when the smart speaker is not with them, they kind of miss it “*Whenever we are away from home, we'll find ourselves saying 'I miss Alexa'*”. About joy, users express their happiness about the smart speaker performance and abilities “*Super happy as it plays all music and links to radio also for more variety.*”

### 3.3.3 User reaction to failure: feeling responsible and improvement belief.

About users' reaction to smart speaker failure in performing a task, in this case, as in the partner social role, users do not complain, rather they find the smart speaker funny and cute. This aspect emerged from reviews about the smart speaker misunderstanding a command, as in this case “*Alexa made me laugh the other day...You had to be there to hear it to find it as funny as I did.*” Also, users attribute the responsibility of the failure to themselves, thinking that the problems are caused by a wrong way in which they formulate sentences “*I expect that the issue is with HOW I AM issuing commands and expect that once I get a better understanding of how to communicate with her the experience will only get better*” or by a peculiar voice characteristics, such as tone of voice as in this case “*My wife has to face her when speaking as she does not have a voice that carries like mine.*” Another user reaction to smart speaker failure in performing tasks is the hope of improvements, meaning that, when users face a malfunctioning, they justify the smart speaker and express their belief that the smart speaker will improve the quality of its performance becoming better day-by-day in answering users' requests, as in this cases “*She will be able to do more with each passing day*” and “*For the most part Alexa responds well. Does still have some quirks but she is getting smarter.*”

### 3.3.4 Anthropomorphism.

As it happens in the partner role, users anthropomorphise the smart speaker using personal pronouns, calling it by the name “Alexa”, and describing it as a social entity. In this case, the smart speaker helps the user to take care of the house and of other family members. For example, the smart speaker can be a helper or a good companion in managing the house, as it emerges from this user's words “*A great home companion to which you just need to give simple directions to generate commands, routines, alarm clocks...*” and a general helper “*Alexa is more of a social device and all-around helper.*” Moreover, the smart speaker can also be a caregiver as in the case of this user who said: “*It's like having someone else here that helps me take care of my Dad!!*”

## 4. Discussion

First of all, this work contributes to the consumer-SO relationship literature examining a new social role: the affectionate caregiver. Indeed, from our data emerged that not all the reviews were about the smart speaker as a partner or servant. Many users talk about the smart speaker as a hybrid figure that have some characteristics of both the other social roles. The affectionate caregiver can act submissive, as a servant, but also dominant and friendly, as a partner. The user expresses joy, as for servant, but also love, as it happens with partner smart speakers. Lastly, the user is also willing to take responsibility for the smart speaker failures, which is an aspect that is in common with the partner. This is probably connected with the nature of the device itself, which is an “assistant” by definition and executes assistant-like tasks: so, in several cases, even if the objects express some partner-like features, it cannot lose its servant-like nature, expressing eventually a hybrid role. Indeed, Schweitzer et al. (2019) define the SO as a partner as a “serving assistant with personality”. Our conceptualization overcomes this limit by separating the hybrid role of the affectionate caregiver from the role of the partner, in which the object has only high levels of agency and is considered as a friend or a family member. Research that tests only the effects of the servant vs partner roles is therefore taking into account an incomplete image of the whole SO positive social roles scenario. Future research interested in manipulating the SO social role should also include the affectionate caregiver figure.

Our work also contributes to the consumer-SO relationship literature examining SO social roles with a new methodological lens. Indeed, while Schweitzer et al. (2019) examined the role of the partner and servant using solicited data (i.e., interviews and tasks feedback) we used unsolicited data (i.e., customers’ online reviews). Besides the emergence of a new social role, our findings confirm several aspects that emerged also from Schweitzer et al. (2019) study, such as the agency dimension or the reaction to failure.

This work presents limits that leave room for future research. First of all, our study is based only on data about smart speakers. As already outlined, these kinds of devices have a lot of servant-like characteristics and also a domestic nature that can facilitate the emergence of a hybrid social role like the affectionate caregiver one. It is, therefore, possible that with a different device that is not connected with utility or domestic tasks, such as a smartwatch (more linked with health-related or fitness activities), other social roles, can emerge. Future research should examine that. Secondly, despite analysing reviews from multiple countries (Italy, UK, and US), this study relies on data that are only from western countries. Previous literature claims that people in the eastern and western countries can have a different approach over their emotional world that can, eventually, influence their relationships (Bagozzi, 2020), so future research can examine if users from eastern cultures can develop consumer-SO relationships that differ from the ones examined in this study.

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