Serving customers through chatbots: positive and negative effects on customer experience

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Abstract

Purpose – Service research offering a view of both the dark and bright sides of smart technology remains scarce. This paper embraces a critical perspective and examines the conflicting outcomes of smart services on the customer experience (CX), with a specific focus on chatbots.

Design/methodology/approach – This study uses empirical research methods to examine a single case study where an online retail service provider implemented a chatbot for customer service. Using discourse analysis, we analysed 7,167 conversations between customers and the chatbot over a two-year period.

Findings – The analysis identifies seven general themes related to the effects of the chatbot on CX: interaction quality, information gathering, procedure literacy, task achievement, digital trust, shopping stress and shopping journey. We illuminate both positive (i.e. having a pleasant interaction, providing information, knowing procedures, improving tasks, increasing trust, reducing stress and completing the journey) and negative outcomes (i.e. having an unpleasant interaction, increasing confusion, ignoring procedures, worsening tasks, reducing trust, increasing stress and abandoning the journey).

Originality/value – The paper develops a comprehensive framework to offer a clearer view of chatbots as smart services in customer care. It delves into the conflicting effects of chatbots on CX by examining them through relational, cognitive, affective and behavioural dimensions.

Keywords Digital service encounter, Chatbots, Conversational agents, Customer experience

Paper type Research paper

1. Introduction

Service provision through smart technology has been growing and is set to increase further (Kunz *et al.*, 2019); for example, the number of digital voice assistants, such as Amazon Alexa or Google Assistant, being used in devices is expected to double from 4.2 billion in 2021 to 8.4 billion in 2025 (Statista, 2022). Technology is deemed smart "when it is able to perform tasks and accomplish objectives that traditionally required human intelligence and capabilities" (Mele *et al.*, 2022b, p. 888). Service providers offer smart tech-based services to enhance interactions and relationships throughout the 'phygital" (physical + digital) customer journey (Mele and Russo Spena, 2022). Scholars and practitioners predict that many commercial activities will be replaced by machines and robots (e.g. Song and Kim, 2022; Deloitte, 2023) and emerging technologies will empower customers to acquire precisely what they desire, when they desire it, with a high level of personalisation made possible by the automation of processes and the intelligence of machine learning algorithms (Huang and Rust, 2022).

Superficially, it seems to be the golden age of technology; however, technology is not a panacea (Mele *et al.*, 2019) and failures and shortcomings are frequent. Artificial intelligence (AI)-enabled service interactions can falter, causing customer anger, confusion and discontent (Castillo *et al.*, 2021). Issues related to cognitive abilities, emotional processing and functionality represent just a fraction of the factors that can contribute to an unfavourable customer experience (CX) with smart services. The subsequent adverse responses from customers can reveal and intensify negative biases and/or compromise customer purchase behaviours and loyalty, ultimately leading to disengagement (Puntoni *et al.*, 2021).

There is an ever-present risk of causing harm or displeasing customers and research that assesses both the dark and bright sides of smart technology remains scarce. We thus embrace a critical perspective to examine the conflicting outcomes of smart services, with a specific focus on chatbots (also defined as conversational agents or virtual assistants), which have recently proliferated across numerous industries (Crolic *et al.*, 2022) and have received significant attention in service research (Mozafari *et al.*, 2021) due to their ability to handle a wide range of tasks, such as customer service, sales support and information retrieval (Lee *et al.*, 2023). We examine how the use of smart services such as chatbots affects the CX in digital service encounters.

Prior research on CX recognises the presence of multiple dimensions as customers experience their journeys in service encounters using their senses, emotions, behaviours and cognition (Lemon and Verhoef, 2016; Bolton *et al.*, 2018). Digital service encounters depict how smart technologies are transforming human-to-human interactions into human–technology interactions, as in relationships managed by chatbots (Larivière *et al.*, 2017).

Chatbots, as a specific type of smart service (Li *et al.*, 2021), are computer programs that use text, audio and/or facial emotions to emulate human communication (Mozafari *et al.*, 2021). Service providers can adopt conversational agents to innovate customer service and care, alongside the traditional forms (e.g. call centres, mail services). The assistance that the customer receives relates to clarification, information, complaints and warranty on the offered products and is geared towards building loyalty and bolstering the CX. The latest advancements in deep learning and machine learning, combined with traditional natural language processing, can augment conversational agents as tools for customer care in service contexts (Castelo *et al.*, 2023).

Whilst preliminary studies have been published in computer science literature, it is only recently that chatbots have garnered substantial attention in service research (Mozafari *et al.*, 2021). Across service settings including retailing (Chen *et al.*, 2021), hospitality and tourism (Li *et al.*, 2021), or education (Lin and Yu, 2023), chatbots have been investigated in terms of attributes, such as their design, capabilities and applications. Previous literature highlights the main benefits of the chatbot as speed of use, personalised user-driven information and the ability to perform tasks in a fast, efficient and automated manner (Li *et al.*, 2023). In this view, companies can acquire an additional channel of visibility, access the vast number of users who utilise chat services and provide customer support in an automated manner. In certain cases, chatbots can also become a sales channel. Nevertheless, this smart service is still emerging and the majority of service research has prioritised highlighting the favourable outcomes of chatbot implementation whilst neglecting their adverse effects on CX, which often arise from well-intentioned concepts that yield undesirable consequences.

In this paper, we take a more balanced view to focus on the potentially conflicting effects of chatbots on CX in digital service encounters. We address Robinson *et al.* (2020) and Bolton *et al.*'s (2022) calls for more research on the evolution of service encounters and more evidence of how counterfeit encounters affect CX, by focussing on the adoption of technology by customers. We pose the following research question: *What are the positive and negative effects of chatbots on CX in digital service encounters?*

Our investigation involves case theory (Gummesson, 2017), applied to an online retail enterprise that has integrated a chatbot for customer service. In recent times, the retail industry has become one of the most significant adopters of conversational agents for customer care; agents capable of providing 24/7 support and handling large volumes of enquiries simultaneously, thereby reducing wait times for customers (McKinsey, 2021).

This paper extends the service research by addressing a wider and more balanced view of the conflicting impacts of smart services (i.e. chatbots) on CX in digital service encounters (Ostrom *et al.*, 2019; Söderlund, 2020). Our main contribution lies in framing the positive versus negative impacts arising from chatbots within the relational, cognitive, affective and behavioural dimensions of CX. We identify seven themes that emerge from chatbot–customer conversations: interaction quality and information gathering (i.e. the relational dimension), procedure literacy and task achievement (i.e. the cognitive dimension), digital trust and shopping stress (i.e. the affective dimension) and shopping journey (i.e. the behavioural dimension). In addition, we contribute to the existing literature on digital service encounters by stating that satisfactory service encounters in a dynamic, hybrid, phygital context depend largely on the quality of customers' interactions with technology. Third, by examining the content of chatbot–customer conversations and identifying common patterns and issues, we shed light on how customers interact with conversational agents as a specific type of smart service for customer care.

The next section provides a review of the reference literature according to three main topics: CX, digital service encounters and chatbots in service research. We then present our methodology and findings. Finally, we discuss our main theoretical contributions, managerial implications and possible avenues for further research.

2. Literature review

2.1 Customer experience (CX)

CX is the customers' subjective response to any interaction with that harmonise services and goods to engage customers in memorable events and integrate material and emotional consumption (Schmitt *et al.*, 2015). Prior analyses of this construct highlight different dimensions (relational, cognitive, affective and behavioural) related to customers' deliberate and spontaneous reactions at various touchpoints (McColl-Kennedy *et al.*, 2019). Relational CX pertains to how customers perceive their relationships with other actors (employees, customers, technologies) or entities (brands) during interactions (Gahler *et al.*, 2023). These relationships can range from casual acquaintanceships to strong connections that shape the social contexts of customers' interactions. Cognitive CX relates to the efficiency of obtaining products and services; it involves functional information (e.g. service quality) that helps customers assess and decide on purchases (Barari *et al.*, 2020). Affective CX encompasses customers' emotional responses – such as excitement, pleasure, relaxation, security and entertainment – during their interactions with service providers. This dimension particularly focuses on the enjoyment and hedonic engagement in shopping experiences, as highlighted by Gao *et al.* (2023). Whilst affective responses vary widely, customers often classify them into categories of pleasure (like happiness and love) or displeasure (such as anger and sadness), as noted by Gao *et al.* (2021). On the other hand, behavioural CX pertains to the actions and reactions customers exhibit, reflecting their lifestyles, interactions with others and their broader environment (Rather and Hollebeek, 2021).

CX may be pleasant or unpleasant "with regard to satisfaction, value, quality, image, purchase intentions, patronage, loyalty and recommendations" (Jain *et al.*, 2017 p. 655). Scholars argue that CX reactions correlate to positive consumption outcomes (e.g. satisfaction, repurchase behaviour), whereas negative reactions relate to negative

consumption outcomes (e.g. dissatisfaction, avoidance behaviour) (Manthiou *et al.*, 2020). From this standpoint, technology plays a crucial role (Flavián *et al.*, 2019). For example, the ability to access information instantly and from anywhere and to participate in e-commerce has changed the ways that people buy – sometimes without even speaking to service providers (Gao *et al.*, 2021). Emerging technologies, such as AI and chatbots enhance and facilitate the ability of service providers to respond to new types of customer needs, such as immersive, tailored and emotional experiences (Hoyer *et al.*, 2020). Customers experience positive feelings when they rely on technology, which effectively completes required tasks, even when it replaces human operators (Huang and Rust, 2022).

However, customers respond negatively when their cognitive and affective goals are not met (Barari *et al.*, 2020). For example, if customers perceive they are spending more time than necessary using technology, a negative CX results, characterised by negative emotions of frustration, disappointment and uncertainty (McLean *et al.*, 2018). Feelings of stress may also occur when using technology and stressful experiences can reduce customers' affective responses and satisfaction (Lucia-Palacios *et al.*, 2020). Kumar *et al.* (2022) describe customers' "technostress" as "the result of negative experiences faced by customers when interacting with firm-based new-age technologies" (p. 2240). Such negative experiences arise if customers do not know how to use a technology or place no trust in it. The discussion surrounding the impact of smart technologies on CX is intensifying, with the emphasis shifting towards the role of digital service encounters.

2.2 Digital service encounters

Service encounters are rapidly evolving, as the result of vast technological advances, causing a paradigm shift in the typically "low-tech, high-touch" context (Bitner *et al.*, 2000). "Digital service encounters" (Heinonen, 2008) or "Service Encounter 2.0" (Larivière *et al.*, 2017) can pertain to "any customer–company interaction that results from a service system that is composed of interrelated technologies (either company- or customer-owned), human actors (employees and customers), physical/digital environments and company/customer processes" (Larivière *et al.*, 2017, p. 239). Such service encounters generally occur online, encompass interactions with a variety of technologies and are increasingly shaped by the customer's active role (Maar *et al.*, 2023). De Keyser *et al.* (2019) define various archetypes of technology-infused service encounters, highlighting the replacement of frontline employees with technology as the most common encounter, particularly as a result of the rapid development of AI-based assistants. Moreover, as Robinson *et al.* (2020) note, as "AI continues to become more human-like, opportunities for counterfeit service encounters will increase". In counterfeit service encounters, customers and frontline employees are unaware they are speaking with non-human partners.

In this evolving hybrid phygital context (Mele and Russo Spena, 2021), the quality of the interaction between customers and technology can be critical in enabling satisfactory service encounters. In service research, interaction quality refers to consumers' perceptions of how service is provided (Castelo *et al.*, 2023) and how consumers view their relationships with service providers, such as staff members, during service delivery (Kim and Choi, 2016). Interaction quality engenders trust as a critical factor that influences the adoption of AI-based voice-assisted systems. Trust relates to consumers' perceptions that virtual agents perform consistently and thus inspire feelings of confidence when providing support (Fernandes and Oliveira, 2021; Lee *et al.*, 2021).

As the digital reliability of service quality increases, customers switch to technology-based service providers, seeking to avoid the service failures experienced during other (human operator) service encounters (Wu *et al.*, 2021). Not all service encounters result in positive CXs and negative events increase the likelihood of customers exiting the encounters

(Akaka *et al.*, 2015). Negative emotions and stress may accumulate if negative situations persist (Fliess and Volkers, 2020). For task-oriented customers, a correlation emerges between shopping stress and journey abandonment as service quality worsens. Service encounters may have a significant impact on CX if customers end up worse off than they were before they used the service (Bolton *et al.*, 2022). For example, service failure might lead to a perceived loss of resources (e.g. wasted time) that results in frustration and mistrust (Castillo *et al.*, 2021). Although such studies shed some light on the adverse outcomes of technologies, no research has focused on chatbots and CX, although such understanding could be useful given the growing deployment of these conversational agents (Van Pinxteren *et al.*, 2020; Söderlund and Oikarinen, 2021).

2.3 Chatbots in service research
Emerging field research has focused on smart services that affect CX through connected systems and machine intelligence (Beverungen *et al.*, 2019). Conversational agents represent a specific type of smart service because they enable "real-time data collection, continuous communication and interactive feedback" (Wünderlich *et al.*, 2015, p. 443). They incorporate computational-linguistics methods into online communication settings, as "text-based virtual robots that emulate human-to-human conversation through natural language processing" (Mozafari *et al.*, 2021, p. 221). The expression 'conversational agent" implies the exchange of ideas, viewpoints, or emotions that typically takes place during conversations that use agent-designated systems to simulate human interaction. However, since the debut of these agents, they have been assigned a variety of labels that influence how they interact with clients, including virtual assistant, digital assistant, conversational agent and chatbot (e.g. Van Pinxteren *et al.*, 2020). Chatbots have also attracted the interest of practitioners as essential strategic assets for business because they provide the opportunity to offer effective, 24/7 customer care and service (Thomaz *et al.*, 2020). According to Lim *et al.* (2022), conversational agents can simulate social presence and interaction by presenting humanised images of computers that imitate human abilities, such as recognising and responding to communication, providing feedback and fostering conversation. Due to their accessibility, relative affordability and ease of use for end users, conversational agents facilitate various business processes, particularly those related to customer service (Przegalinska *et al.*, 2019).

By learning from prior discussions and continuously modifying their actions, AI technologies can imitate human conversations and offer more realistic experiences (Mozafari *et al.*, 2021). Whilst chatbots have mostly been used to replace frontline human employees to increase productivity, they inherit the challenges of service interaction quality (Castelo *et al.*, 2023). Convincing customers that chatbots can handle enquiries, provide credible information and deliver reliable services is one of the major challenges of their use (Crolic *et al.*, 2022). Many customers use chatbots primarily to handle straightforward requests, such as finding the answers to frequently asked or routine questions. However, as technology advances, both the range of services that chatbots offer and the expectations of users increase; the inability of chatbots to handle complex conversations remains a significant barrier to their widespread use (Rapp *et al.*, 2021). Preliminary research on negative biases – such as mistrust – associated with the deployment of chatbots also cites customers' lack of knowledge of procedures (tech literacy) (Syvänen and Valentini, 2020), all of which are elements that prevent customers from utilising the technology (Fernandes and Oliveira, 2021). In summary, though many studies have identified the potential of chatbots in service encounters, none have simultaneously investigated how this technology might affect CX both positively and negatively.

3. Research process

We adopted case theory as a suitable methodology to introduce new theoretical contributions in service research (Mele *et al.*, 2022a). This methodological approach involves addressing a particular case by identifying recursive cycling amongst the collected data (Eisenhardt and Graebner, 2007) and generalising the data to a broader area (Gummesson, 2017). It involves interactions between researchers and study objects, with phenomena and actors investigated using a systems perspective (multiple items, emerging relationships, broader view of the phenomenon).

3.1 Case description

Digital technologies and smart services are popular in the retail sector, enabling consumers to visualise products in real time and make more informed purchasing decisions. In this context, our study entails deep into the analysis of an online retail company. Retailers increasingly rely on digital systems for communication (Hänninen *et al.*, 2021). This reliance, coupled with their need for efficient routine actions, drives the adoption of self-service technologies capable of automating customer relations (Sheehan *et al.*, 2020). Consequently, the retail sector presents an ideal setting for analysing both human and non-human interactions, particularly using chatbots. Our focal company, an online menswear store founded in 1985, entered the e-commerce business in 2010. With a customer base spanning Europe, it operates through various distribution channels including offline and online platforms. Before 2020, the company exclusively handled customer service via email and telephone. However, in response to the increasing demand experienced during the COVID-19 pandemic, they implemented an AI-based chatbot in early 2021, developed by an information technology (IT) provider, with the scope to automate conversations on different channels, complement human operators and replicate customer care with automated and personalised responses.

Customers entering the retail company's website find a button in the lower-right corner with which they can initiate a conversation. By default, the chatbot responds only if prompted, but if the user remains on the same page for an extended time, it presumes indecision and then automatically sends an invitation to start a conversation by asking what the customer needs.

3.2 Data collection

We collected data for 24 months, from January 2021 to December 2022. We collected 7,167 conversations between customers and the chatbot during this time, involving 48,090 messages exchanged. Each customer user exchanged around seven messages with the chatbot; these conversations were not limited to simple requests but were part of longer conversations that consisted of continuous exchanges of questions and answers, similar to conversations between humans. Appendix 1 provides more detailed information about the data, including observations about how customers used the chatbot (how), the types of information to which customer questions referred (what) and the most requested interactions that the chatbot fulfilled (why). Taken together, these data provide both an overall picture of customers' experiences (relating customers' intentions to successful responses) and a primary understanding of customers' interactions with the chatbot (describing customers' reasonings and behaviours).

Our data capture the times and moments interactions were initiated, as well as transcripts of the actual conversations managed by the chatbot (Hodges *et al.*, 2008). We collected the data in several stages. First, we gathered all 7,167 conversations from the dashboard offered by the online platform that the company used to manage the chatbot. Second, we downloaded and organised similar conversations into a .txt file, to draw connections and abstract meaning from in-depth analysis. The search for conversations ceased when theoretical saturation was

achieved, such that no new additional data emerged from reading the conversations (Gummesson, 2017).

We aimed to gain insights into customers' perspectives and perceptions during their service encounters with the chatbot and understand how the chatbot operated to manage conversations. We sought to comprehend the reasons and times the conversation was initiated, actual positive or negative responses to customers' needs and accurate executions of the chatbot's programmed tasks. By studying conversations (Hardy, 2001), written by both the chatbot and customers during their interactions and by analysing the language choices (i.e. the use of formal or informal language and emojis), we were able to understand the impact on customers' overall experiences (Li and Wang, 2023).

3.3 Data analysis using a discourse approach

We analysed the data using discourse analysis, a qualitative, interpretive and constructionist method for examining social phenomena that focuses on the relationships amongst text, discourse and context (Phillips and Hardy, 2002; Mele and Russo Spena, 2021). This technique includes a set of guidelines for conducting structured, qualitative investigations of texts (Wood and Kroger, 2000), as well as a set of presumptions regarding the beneficial effects of language, thus facilitating the acknowledgement of concealed meanings (Burman and Parker, 2016). Discourse analysis allows to acquire data-driven insights from uncommon conversations with chatbots (Wang and Petrina, 2013) as it enables the comprehension of any unintentional intent that may arise during machine learning (Lee et al., 2023).

Discourse analysis views text as the primary data, focussing not on singular content or meaning but rather on explaining how specific ideas or actions come to be expressed and identifying the factors that enable or constrain the language (Cheek, 2004). It stems from the belief that meaning arises from interrelated texts (discourses) that bring new ideas, objects and practices into the world. Discourses are "concrete" in that they are performative in the practices they enact (Phillips and Hardy, 2002, p. 20). In the specific investigated context, this method enables researchers to understand how experiences (i.e., consensus of attitudes, opinions and beliefs held by people) come out, rather than understanding or interpreting phenomena as they currently exist (Hardy, 2001). Discourses are embodied in texts, discourse analysis entails the systematic study of texts to seek evidence of their meaning and determine how this signified meaning translates into new experiences through human-chatbot conversation (Hardy et al., 2004).

We used an interpretative repertoire, which is a collection of words and frequent extracts from conversations with the chatbot. By increasing the possibility of saturation, we also established standards for future analysis that can account for new themes. We identified significant interpretative repertoire nodes, also known as second-order themes, in the initial step of the coding process. The data analysis resulted in the identification of various second-order themes ("parent" repertoires) and first-order themes ("child" repertoires) to outline assorted discursive constructions of customers, in accordance with the coding strategy. Table 1 provides a summary of the interpretative repertoires.

To understand the effect of the chatbots on CX, we conducted a discursive analysis of the collected conversations that allowed us to retrace repetitive elements amongst them, thus deriving emerging themes and their competing interpretative repertoires. We detected seven discursive constructions (i.e. themes) in digital service encounters between the chatbot and customers: interaction quality, information gathering, procedure literacy, task achievement, digital trust, shopping stress and shopping journey. In turn, we identified opposing discourses and define various categories and boundaries that surround the themes and then determine how they formed through the intersubjective perceptions of various actors.

Example statement Customer queries	Chatbot responses	Discursive construct	First-Order theme	Second-Order theme
"I would like to buy a shirt." "Thanks for the support."	"Perfect, you can …☺" "I am glad to have helped you. See you soon.🐦"	• Having user-friendly language • Use of emojis as a complement to the answers	Having a pleasant interaction	Interaction quality
"Available sizes" "L"	"All available sizes and colours are selectable ones." "I cannot answer. Maybe you mean available sizes?"	• Aseptic and often repetitive conversations	Having an unpleasant interaction	
"I have a question about the sizing of the following product: G2370 A. I am 178 cm tall and weigh 65 kg. What size should I get?" "I made a purchase yesterday, it was paid for with magic check-out. However, unlike other times, your order confirmation message has not arrived."	"For more information on sizes, you can consult the table by simply clicking here." "Often the order and shipping confirmation emails arrive in spam boxes …🔒"	• Suggestion with pages of interest • Enabling proactive customer service	Providing information	Information gathering
"Hello, I would like to know what material this product is made from?" "Order #store-100123473 status?"	"You can see more detailed information in the product sheet." "I don't have access to orders, you can check all the information in your personal area."	• No connection with company products or orders database • Incorrect interpretation	Increasing confusion	
"How can I pay for my order?" "I made a purchase yesterday; however, I haven't received your order confirmation message."	"The payment methods currently available are PayPal, credit card, bank transfer, and cash on delivery." "If you have verified that you have not received the email, you can write to our mail address to get more information!🔒"	• Provision of instructions on company policies (e.g. shipping and return) • Direct customers towards the answer searched for	Knowing procedure	Procedure literacy
"What is the shipping status?" "I would like to order the pink coat, when will it be available again?"	"… You can check the status of your order directly on the courier's website by entering the tracking code received in the confirmation email.📧" "I do not have this information, I [will] ask for operator support!"	• Need for reference to third-party actors • No acceptance of audio and/ or pictures	Ignoring procedure	

(*continued*)

Table 1.
Trade-offs of opposing effects of AI-based chatbots on customer experience

Example statement Customer queries	Chatbot responses	Discursive construct	First-Order theme	Second-Order theme
"I would like to speak to an operator." "Hi, is the beige dress available in size 44?"	"The operator will respond in a few minutes . . ." "It is simple! By clicking on a product, all available sizes and colours are selectable ☺."	• Conversation handling switches between robot and human operators • Matching of user intention and chatbot response • Enabling multitasking activities by customers	Improving task	Task achievement
"I would like to know if the G2862 A product is suitable for winter." "Hi, the courier did not deliver but I was at home, why?"	"I don't know how to answer this question . . ." "I can't reply [to] this . . ."	• Unable to respond to specific questions • Mismatching user needs and chatbot reply	Worsening task	
"Can I receive shipping information? I haven't received my order yet." "I wanted to know if you have prepared my order."	"Don't worry, sometimes there are delays. You can check the status . . ." "Order preparation and shipping may be delayed due to the current health emergency. We apologise for the inconvenience! 🙏"	• Conveying reassurance and confidence • Fostering positive emotional states	Increasing trust (reliability)	Digital trust (reliability)
"Is it the same product that I have already purchased?" "speak [to] operator"	"I can't answer this question, check if the code is the same on your account page." "Okay, just a moment. The operators are currently busy, we will reply as soon as possible."	• Misalignment between human operators and chatbot responses • Discouraged and afraid of wasting time	Reducing trust (reliability)	

(*continued*)

Table 1.

Table 1.

Example statement Customer queries	Chatbot responses	Discursive construct	First-Order theme	Second-Order theme
"I can't enter [the] colour and size." "I would like to send the parcel back."	"It is simple! You can select size and colours just by clicking on the …" "I'm not sure what you're asking, do you mean this by any chance? Exchange/Return or Refusal of shipment"	• Speed up interactions through immediate responses • Avoid misunderstanding	Reducing stress	Shopping stress
"What is the difference between oversized and regular in black patent leather jackets?" "Impossible. You are useless." "… What a shitty bot."	"I don't know the answer to this question, ask for operator support!" "I don't understand. Maybe you meant this? …"	• Need for human intervention for complex questions • Inability to recognise customers and to create a follow-up • Feeds users' impatience and nervousness	Increasing stress	
"I would like to place an order." "How can I complete my choice?"	"Hi, how can I help you? Do you want to make a purchase or have you already placed an order?" "Click ok to confirm the order, without opening any other page. ☺"	• Driving customers along an easier check-out path • Rephrasing questions in a simpler way to create a follow-up	Completing the journey stage	Shopping journey
"I've been waiting for half an hour for someone to answer me." "I have not received the discount code for subscribing to the newsletter."	"I'm sorry. No operator is available at the moment." "Have you checked your email? ✉"	• Poor chat progress • Inability to recognise customers and to create a follow-up	Abandoning the journey stage	

Source(s): Table created by authors

In our study, we achieve validity through performativity, such that the assumptions underlying the analysis, though subjective, support one another and form a coherent theory that we apply to the case study. We obtain reliability through differences in interpretation, which are considered a source of data (Hardy *et al.*, 2004).

4. Findings
Our analysis involved categorising conversations into various themes: interaction quality, information gathering, procedure literacy, task achievement, digital trust, shopping stress and shopping journey. In analysing these themes through a balanced lens, we sought to obtain valuable insights into the conflicting aspects of chatbots that affect CX. These factors can lead to positive or negative outcomes for customers, depending on how they are handled. Positive effects are having a pleasant interaction, providing information, knowing procedures, improving tasks, increasing trust, reducing stress and completing the journey; whilst negative effects are having an unpleasant interaction, increasing confusion, ignoring procedures, worsening tasks, reducing trust, increasing stress and abandoning the journey.

The following sections deepen each theme to address the presence of bright and dark sides around the same technology (i.e. chatbot) as a specific smart service.

4.1 Interaction quality
The exchange of messages between the chatbot and customers affects the CX in terms of *interaction quality* which refers to the perceived level of quality in the interaction between customers and chatbots within a service encounter (Lee *et al.*, 2021). The chatbot aims to guarantee satisfying experiences and endeavours to resemble a human operator in the words it uses (*having a pleasant interaction*). Our data analysis shows that through the use of sentences demonstrating that their intentions have been understood, such as "Sure, you have to . . ." (Conversation #431 - Chatbot message), or gratitude for being able to help, such as "I'm happy I could be of assistance. See you again! 👋" (Conversation #798 - Chatbot message), the chatbot achieves this goal and enhances experiences. Moreover, the chatbot's adoption of user-friendly language and emojis is a way in which the technology identifies with human operators and facilitates pleasant interactions with customers: "Cool! Many thanks for your practical and quick assistance! ☺" (Conversation #3173 - Customer message).

However, if the quality of interactions is insufficient, customers may experience unpleasant moments that have the opposite effect (*having an unpleasant interaction*). Sometimes, the chatbot's behaviour is repetitive, because it always responds in the same way or does not understand perfectly. In our data, for example, a customer asks for detailed information on the availability of product sizes. The chatbot, not being connected to the company database, repeats the previous message, says it does not know how to answer, or asks the customer for confirmation that it has understood correctly, without providing a follow-up response. For example: "I'm unable to reply. Perhaps you meant which sizes are offered?" (Conversation #41 - Chatbot message). Customers' dissatisfaction is evident from their responses, such as: "I have already mentioned several times that I simply needed to know the available sizes. This was just a waste of my time" (Conversation #169 - Customer message). The chatbot's unfavourable responses lead to unpleasant interactions, prompting customers to leave the conversation.

4.2 Information gathering
The chatbot is a customer resource that enables *information gathering*, which is the process of collecting data or information to gain insights, knowledge, or understanding about particular needs or issues (Moriuchi, 2023). When customers wish to complete their

purchases, or have already done so, assistance may be required if they lack information. The chatbot can offer them help (*providing information*) coherently and effectively. For example, if a user asks for general information, the chatbot can suggest a page of interest: "To find out more, simply click here to view the sizing table" (Conversation #2834 - Chatbot message), or explain a problem, such as when customers have not received an order confirmation email: "Order and delivery confirmation emails frequently land in spam folders, you can . . . ✉ ⬇" (Conversation #3651 - Chatbot message). In this case, customers respond to the chatbot thanking it for the information received: "Right, it hadn't crossed my mind to check my spam folder. A thousand thanks!" (Conversation #998 - Customer message).

Sometimes, the chatbot provides inaccurate answers (*increasing confusion*). It cannot access all of the company's business intelligence; instead, it is programmed only to respond and suggest certain information. If a customer asks for specific details about a product, the chatbot suggests checking the product sheet but may fail to provide any new information that the customer has not already found: "The product sheet contains further details that could help you" (Conversation #32 - Chatbot message). Similarly, if customers ask for details about their orders or products already purchased, as they often do with human operators, the chatbot cannot retrieve this data and therefore cannot help; sometimes it is even contradictory, leading to other questions, creating frustration and discouraging the customer: "Orders are out of my control; however, you may verify all the details in your personal page" (Conversation #981 - Chatbot message). Customers must deal with conflicting instructions: "Yes, I know, but it doesn't say anything on my account page" (Conversation #432 - Customer message), thereby increasing their confusion: "I didn't understand anything, where should I click?" (Conversation #1762 - Customer message).

4.3 Procedure literacy
Through conversations, the chatbot guides customers to follow company procedures. This general theme is also known as *procedure literacy*, i.e. advancing the spread of company procedures that help customers find easy-to-read information (Smith *et al.*, 2020). The chatbot is readily trained in providing instructions on company policies (*knowing procedures*) (e.g. shipping, returns). For example, it provides instructions about the payment methods accepted by the company: "Sure. Currently accepted payment methods include PayPal, credit card, bank transfer, and cash on delivery" (Conversation #6588 - Chatbot message). Customers, in response, express their gratitude for the assistance and further engage in the conversation with confidence, seeking answers to specific enquiries, such as: "Thank you, could you also tell me if it is possible to pay in several instalments?" (Conversation #3138 - Customer message).

However, the chatbot is not always able to respond to customers' needs or explain the correct procedures and certain features or connections that ensure better experiences have been neglected (*ignoring procedures*). These shortcomings include cases in which customers need to share images with the company; they cannot do so directly during the conversation and can only send them by email: "Sorry, I don't accept images at this time. You can send it directly to our mail address and we will be happy to assist you" (Conversation #7436 - Chatbot message). Thus, customers leave the conversation without comprehending the usefulness of chatbots: "If I had known this before I wouldn't have wasted time explaining it to you" (Conversation #7436 - Customer message). Failures also occur when customers need specific information (e.g. updates on shipment status), which is not provided directly by the company but rather requires input from a third-party actor. In this case, the chatbot ignores the procedure by providing simple information about where to find the tracking code, without providing any information relating to the request: "Using the tracking number from the email confirmation, you can monitor the status of your order directly on the courier's website"

(Conversation #345 - Chatbot message). Customers, in turn, respond, "I can't find the email, I'm looking for a quicker solution ☺" (Conversation #22 - Customer message).

4.4 Task achievement

The theme of *task achievement* pertains to how effectively a chatbot guides users through conversational flows and assists them in accomplishing their tasks or goals (Roy and Naidoo, 2021). The chatbot, as a form of technology that autonomously handles conversations, attempts to identify customer intentions and respond appropriately with contextual messages (*improving tasks*): "By clicking on a product, you can easily select from a range of available sizes and colours ☺" (Conversation #918 - Chatbot message). In this way, it allows customers to self-manage the switch between autonomy and assistance, offering them experiences suited to their needs, quickly when possible and facilitated when necessary. This capacity is highly valued by customers, as they confirm: "Thanks, I did it. However, I would like to pair them with trousers, could I speak to an operator for advice?" (Conversation #769 - Customer message). Thus, the chatbot also enables multitasking, because it performs interconnection actions with the operator whilst continuing to answer other questions: "While an operator is connecting, can I help you in any other way?" (Conversation #1111 - Chatbot message).

However, some tasks can be managed badly, worsening the customer's experience (*worsening tasks*). If the chatbot does not understand the customer's intentions, it does not know how to act or how to respond. Its response of "I'm not sure how to respond to this question" (Conversation #90 - Chatbot message) or "This question is beyond my capacity to respond" (Conversation #1066 - Chatbot message) contrasts with the very reasons for its design and implementation in corporate activities. In turn, customers experience disappointment and frustration and leave the conversation without adequate assistance: "Ugh, that's frustrating!!! I was counting on you to be able to help me ☺". Unsatisfactory behaviours or responses by the chatbot can diminish customer perceptions of the company's reliability and competence.

4.5 Digital trust

The reliability of the system involves a shift from physical to digital and human to machine, which we refer to as *digital trust*, reflecting users' positive beliefs about accepting and using voice-assisted AI systems (Fernandes and Oliveira, 2021). Chatbots foster positive emotional states when customers are confident about the company (*increasing trust*), such as when the chatbot reassures them with comforting words: "It's not a problem, sometimes it happens" (Conversation #21 - Chatbot message). The chatbot can explain that a shipment is late and that employees are doing everything they can to resolve the problem: "The current health emergency may cause delays in order processing and shipping. We apologise for the trouble! ☺" (Conversation #1 - Chatbot message). Customers seem to appreciate this reassuring behaviour: "Thanks for the heads-up, much appreciated! ☺" (Conversation #103 - Customer message).

However, if the chatbot does not provide such reassurance or does so incorrectly, customer dissatisfaction increases, worsening an already difficult change process (*reducing trust*). In this case, not understanding customers' questions and answers, providing information that differs from that previously communicated by a human operator because of slow updating, or simply replying to customers that the operators are busy and that they must wait likely reduces trust even further: "Okay, hold on a second. Although all operators are currently busy, they will be with you as soon as possible!" (Conversation #69 - Chatbot message). Customers value their time and expect a prompt resolution from the chatbot. If it fails to meet their expectations, their trust begins to wane. They might express this as follows: "Next time I'll call directly. You're of no use!" (Conversation #69 - Customer message).

4.6 Shopping stress

The state of anxiety that accompanies customers' purchasing actions is known as *shopping stress*, and this negative psychological reaction can arise when a shopper feels overwhelmed by certain circumstances or situations (Lucia-Palacios *et al.*, 2020). By using a chatbot that guarantees the achievement of a series of tasks quickly and automatically, whilst maintaining human features, the company can develop better experiences. Increasing the speed of interactions and asking customers for more information to avoid misunderstanding can reduce customer stress (*reducing stress*). This behaviour is intrinsic to the chatbot; it responds only in this way if it achieves a particular degree of certainty and otherwise asks for more details: "I'm not sure what you're asking, but might this possibly be what you mean? Payment methods or refund methods" (Conversation #11 - Chatbot message). Customers highly value the chatbot's ability to provide clear information, which reduces shopping stress and encourages them to continue the conversation: "Finally, thanks!!! If I need further information, I will contact you ☺" (Conversation #89 - Customer message).

To try to improve the CX, the company programs text that indulges customers by apologising for their waits or suggesting they make themselves comfortable whilst waiting: "While you wait you can have tea, coffee, or ask me if you need anything else" (Conversation #4568 - Chatbot message). However, chatbot use can also easily lead to unpleasant episodes, which have the complete opposite effect on the CX. If the chatbot does not understand, cannot respond, or does not have the information needed to assist customers promptly, this only adds to shopping stress (*increasing stress*). If the user is in a hurry and thinks the chatbot will respond quickly, and then it fails to do so, the failure will fuel the customer's tension. For example, our data reveal counterproductive effects when customers repeatedly ask for an operator's assistance or degrade the chatbot's functioning: "You are not useful" (Conversation #815 - Customer message) or "you are a very pathetic robot" (Conversation #10 - Customer message).

4.7 Shopping journey

As a technology that interacts with customers, the chatbot is inserted in different moments of the *shopping journey*, referring to the stages a customer goes through from pre-transaction to transaction to post-transaction (Hoyer *et al.*, 2020). From an experiential point of view, being able to complete the journey is a fundamental element of the main themes that influence CXs. When customers initiate conversations with the chatbot and then the chatbot, through questions and suggestions, leads to eventual need satisfaction, the shopping journey is completed (*completing the journey stage*). In the conversations we analysed, the chatbot accompanied customers during their entire journeys, such as by showing them easier routes to check out: "To complete the transaction, you just click on confirm without accessing any additional pages ☺" (Conversation #5541 - Chatbot message). Customers were satisfied with the conversations and the chatbot's answers, expressing gratitude through comments such as: "Thanks for your support ❤" (Conversation #3324 - Customer message) or "See you soon 🖐" (Conversation #5171 - Customer message).

However, in as many conversations, customers end the interaction by demonstrating impatience and frustration. If after one or more messages, they do not receive the correct answers, customers often end the conversations and close the site (*abandoning the journey stage*). For example, customers say, "Yeah. Ok whatever ☺" (Conversation #4933 - Customer message). Their experience is even worse if the chatbot adds nothing new and tells customers they must verify their orders themselves: "Sorry again. Currently, no operators are available. Come back later!" (Conversation #2212 - Chatbot message). In such situations, conversations end in the same way, through dissatisfaction – "Fair enough, forget it. Take care" (Conversation #2871 - Customer message) – or even abruptly with no response from the customer.

5. Discussion

This paper focuses on a specific category of smart services, namely chatbots, which have received significant attention in service research (e.g. Pantano and Pizzi, 2020; Söderlund *et al.*, 2021; Maar *et al.*, 2023). We analyse their influence on the CX, and our findings address a central research question: What are the positive and negative effects of chatbots on CX in digital service encounters?

The conversational agent that we analyse can understand enquiries and provide responses in natural language whilst interacting with users; by studying it, we gain valuable insights into various conflicting aspects of chatbots that affect the CX. Using discourse analysis, we identify several themes that emerge from chatbot–customer conversations: interaction quality, information gathering, procedure literacy, task achievement, digital trust, shopping stress and shopping journey. These themes can be defined in terms of positive effects (i.e. having a pleasant interaction, providing information, knowing procedures, improving tasks, increasing trust, reducing stress, completing the journey) and negative effects (i.e. having an unpleasant interaction, increasing confusion, ignoring procedures, worsening tasks, reducing trust, increasing stress, abandoning the journey). They represent two sides of the chatbot's effects on CX, thus highlighting the nuanced and critical perspective to be taken when investigating the adoption of smart services in customer service and care.

We depict a summary of our findings in Figure 1 to address that chatbot's effects relate to various dimensions of CX (i.e., relational, cognitive, affective and behavioural). Interaction quality and information gathering relate to the relational dimension of CX; our findings suggest that customers can establish good relationships with chatbots. When they provide easily understandable information (e.g., click to act), the interactions extend beyond a single exchange of responses and resemble genuine human-to-human conversations that are repeated over time. Conversely, these relationships worsen when customers perceive a lack of usefulness, such as when the chatbot fails to address their needs (e.g., it is unable to provide answers). However, the longevity of chatbot–customer relationships also depends on the quality of the interaction. By using specific linguistic choices (e.g. incorporating emojis) that emulate human behaviours, the connection between the chatbot and customers can be reinforced. Despite customers' awareness of their mechanical nature, these agents engage in responsive and friendly conversations even outside regular business hours, thus enriching their experiences.
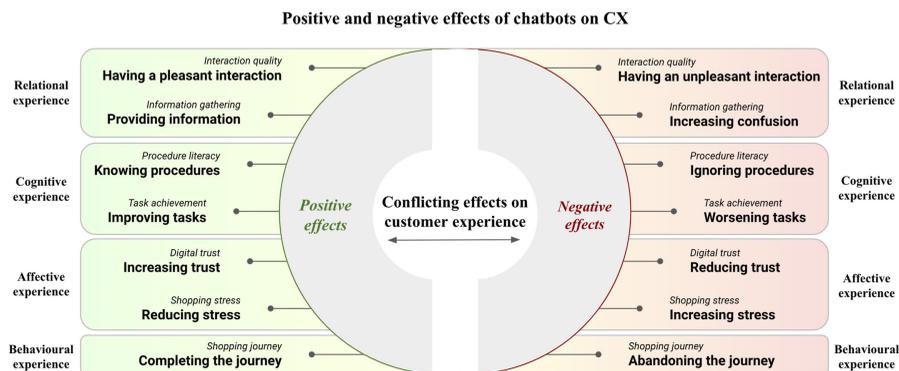
Figure 1.
Effects of chatbots on customer experience (CX)

Source(s): Figure created by authors

Procedure literacy and task achievement relate to the cognitive dimension of CX. Our findings suggest that customers cognitively evaluate the chatbot's actions (e.g. acknowledgements) or evaluate the things it did not do but should have done (e.g. complaints), seeking efficient, automatic sources of functional information on products and services. Regardless of whether the chatbot successfully guides customers through complex business procedures (e.g. providing return instructions) or fails to fully meet their expectations (e.g. referring them to third parties), the awareness gained through simple conversations enhances customers' experiences.

Digital trust and shopping stress relate to the affective dimension of CX. Our findings suggest that the chatbot can emotionally engage customers in conversations. When it addresses customers' needs, their conversations reveal satisfaction and pleasant responses (e.g. positive emoticons). However, if they do not trust the chatbot (e.g. directly requesting operator assistance) despite its repeated attempts to help them, they express words of stress and frustration (e.g. using bad language). By courteously approaching customers using reassuring expressions (e.g. "don't worry") to calm them down or – on the contrary – providing confusing or conflicting answers that leave them in a state of uncertainty (e.g. long wait times), the chatbot also affects customers' perceptions and their experiences.

Finally, the shopping journey relates to the behavioural dimension of CX. Our findings suggest that chatbots accompany customers throughout their entire journey, from pre-transaction to post-transaction, thereby 'binding" them to the company. The process is designed to provide support to customers, which some customers respond positively to (e.g. through pleasant greetings) and others resist (e.g. by making non-executable requests). Nevertheless, the interactions that are activated generate visible customer actions or reactions. Both supportive and discouraging behaviours towards customer needs have undeniable effects on their experiences.

6. Implications for scholars

In response to the call for more studies on the evolution of service encounters and how counterfeit encounters may affect CX (e.g. Larivière *et al.*, 2017; Robinson *et al.*, 2020), we offer evidence of the conflicting effects of a specific type of smart service on CX in digital service encounters. We extend prior knowledge by making three main theoretical contributions.

First, we broaden the CX literature (e.g. Jain *et al.*, 2017; Gahler *et al.*, 2023) by elucidating the conflicting aspects of smart services (i.e. chatbots) that positively or negatively affect CX, thereby providing a wider and more balanced view. These aspects include interaction quality, information gathering, procedure literacy, task achievement, digital trust, shopping stress and shopping journey. Whilst prior empirical studies of CX have explored its various facets separately (e.g. Gahler *et al.*, 2023), our research is the first to analyse these themes together. Moreover, we link the themes to the relational, cognitive, affective and behavioural dimensions of CX. By incorporating and examining these various dimensions, we expand on previous studies (e.g., Barari *et al.*'s 2020) which have focused on single dimensions of CX (i.e. cognitive and affective). Our results expand the understanding of CX by encompassing a broader range of dimensions, thereby providing a more comprehensive view of CX.

Second, we contribute to the existing literature on digital service encounters (e.g. Robinson *et al.*, 2020; Wu *et al.*, 2021) by suggesting that satisfactory service encounters in a dynamic, hybrid, phygital context (Mele and Russo Spena, 2021) depend largely on the quality of customers' interactions with technology. Prior studies (e.g. Castillo *et al.*, 2021) have shed some light on the adverse outcomes of technologies in digital service encounters, suggesting the need to analyse the exponential deployment of conversational agents (Van Pinxteren *et al.*, 2020; Söderlund and Oikarinen, 2021). To develop a comprehensive understanding of counterfeit service encounters (Robinson *et al.*, 2020), it is important to consider both the

positive and negative outcomes that arise when customers or frontline employees are unaware that they are interacting with non-human partners.

Third, by examining the content of chatbot–customer conversations and identifying common patterns and issues, we gain a deeper understanding of how customers interact with conversational agents as a specific type of smart service (Wünderlich *et al.*, 2015). We advance this literature by offering a clearer view of chatbots as smart services that can serve customer needs (Sidaoui *et al.*, 2020) and a broader perception of the crucial factors that influence the achievement of better experiences (Maar *et al.*, 2023). Chatbots can offer a wider range of services to support the increase in user expectations (Hoyer *et al.*, 2020). Preliminary research on chatbot deployment has highlighted certain negative biases, including mistrust (Mozafari *et al.*, 2021) and customers' lack of knowledge about procedures (Syvänen and Valentini, 2020). We advance this literature by identifying other aspects that may give rise to negative bias, such as unpleasant interactions, increasing confusion, ignoring procedures, reducing trust, increasing stress and abandoning the journey.

Complementing this, whilst certain extant studies have focused on the positive outcomes of adopting a chatbot such as scalability, 24/7 availability and cost savings (Ling *et al.*, 2021), we add a more customer-focused view within the CX debate, namely having a pleasant interaction, providing information, knowing procedures, improving tasks, increasing trust, reducing stress and completing the journey.

7. Implications for practitioners

In addition to theoretical implications, our findings provide novel information for practitioners. By analysing customers' relational, cognitive, affective and behavioural reactions, we provide guidance to managers on how to develop strategies for handling positive and negative effects on CX in digital service encounters.

First, managers should recognise that smart technologies have the potential to enhance CXs by offering personalised services and automated processes. However, although this prospect may appear promising, it is crucial for managers to avoid viewing technology as a magical solution. They must closely monitor chatbot interactions and analyse customer feedback, behaviours and emotions to identify areas in which chatbots may cause frustration or confusion. By regularly evaluating chatbot performance and making necessary improvements, they can minimise negative CX. Moreover, they can explore ways to integrate customer data and preferences into chatbot functionalities to provide more tailored recommendations and solutions that enhance users' cognitive and affective perceptions of the overall CX. They should also monitor customer interactions to detect possible shortcomings or gaps that may result from the use of smart services, keeping in mind that chatbots can be a valuable tool for mitigating the risks of automated processes and gathering information about customers and their problems (e.g. site malfunctions, dissatisfaction), in support of business improvements and decision-making (Hoyer *et al.*, 2020).

Second, to enable satisfactory service encounters, it is crucial to improve interactions between customers and technology. Because today's customer journeys are multi-touch and multi-channel in nature, new types of stimuli are constantly emerging. Managers must understand a wide range of touchpoints that are both within and beyond their control, in offline and online settings; they must understand how these touchpoints affect overall CX as a set of relational, cognitive, affective and behavioural responses (Becker and Jaakkola, 2020; Mele *et al.*, 2021). From this perspective, chatbots play a key role due to their self-learning abilities, personalisation features and cross-selling actions.

Third, we recommend that managers mitigate the potential negative impacts of technology. Our study identifies some previously unnoticed issues and feedback; it suggests that managers should leverage chatbots to provide immediate and continuous

communication with customers, to better understand their needs and preferences. This communication should be adjusted by using discourse analysis. Tailoring communication involves analysing the linguistic nuances of customer messages, enabling chatbots to deliver personalised responses that resonate with individual customers. Furthermore, language and discourse analysis allow chatbots to adapt their tone and style of communication to match the customer's language, creating a more natural and relatable dialogue. This tailored approach not only fosters more meaningful interactions but also enhances the overall CX by demonstrating a genuine understanding of their concerns and preferences.

In addition, managers should offer a hybrid conversation approach that allows for the inclusion of human operators if necessary. By routing conversations through chatbots first, human operators can gain access to an initial database of customer requests, understand the issues and provide immediate, personalised support. This approach promises to not only improve the efficiency and effectiveness of service provision but also enhance the overall CX by reducing wait times and ensuring requests are handled accurately and promptly (Van Pinxteren *et al.*, 2020). By analysing customers' relational, cognitive, affective and behavioural reactions, managers can improve service provision and prepare for technology implementation.

Finally, managers should acknowledge that chatbots require continuous adaptation and development as they evolve over time paralleling the company's evolution and the changing needs of customers. To provide accurate responses (Sheehan *et al.*, 2020), the capabilities of chatbots should be adapted and refined based on the interactions they engage in daily. The use of machine learning algorithms could enhance chatbot performance by identifying frequent requests, analysing message content and self-improving its training directly from human feedback. Our findings suggest that the better the training provided to chatbots, the more their ability to effectively manage a dialogue increases, consequently leading to an improved CX (Sidaoui *et al.*, 2020). It is incumbent upon managers to continuously scrutinise and elevate the quality of these chatbot–customer interactions. Employing diverse training techniques, such as reinforcement learning (a method where chatbots learn from the consequences of their actions: Lin *et al.*, 2023) is essential. Such strategies are not merely beneficial to ensure operational efficacy but are critical in fortifying the customer–company relationship longitudinally and leading to more engaging CX.

8. Limitations and further research

This study offers insight into the impacts of chatbots on CX. However, there are also limitations, thus creating opportunities for further investigation. First, we focus on a single case within an online retail environment, analysing the effects of chatbots on CX in digital service encounters. However, an in-depth analysis of disparate industries (e.g. healthcare, hospitality) as well as the perceptions of customers themselves might yield alternative results. Specific research questions could be: *How do the factors influencing the successful integration and implementation of chatbots differ across industries? How do these factors impact customers' overall satisfaction and engagement in digital service encounters?* People's perceptions are shaped by their unique needs and the specific context of their interactions. This broadened approach based on experiences in different industries could provide invaluable insights into how to effectively integrate chatbot features, thus tailoring interactions into a more seamless and customer-centric digital service.

The study reveals the dark and bright sides of chatbots serving customers and omits an exploration of the neutral aspects. A comprehensive analysis of chatbots' neutral effects can offer a valuable lens through which to assess digital service encounters where customer outcomes have remained largely unaffected. Specific research questions could be: *What criteria need to be taken into account to assess the neutral effects of customer interactions with*

chatbots? How can these neutral elements be incorporated into a comprehensive framework for improving CXs? This in-depth examination could not only shed light on specific areas where chatbots have made minimal disruptive changes but also make a significant contribution to scholars' broader comprehension of the holistic influence that these technologies wield.

Third, the scope of our study is confined to identifying the effects of chatbots on the CX, without attempting an exhaustive exploration of such determinants. Continued research could move the discussion towards the cross-sectional relationships amongst the four dimensions (relational, cognitive, affective, behavioural) of CX, in terms of their respective effects, analysing how to mitigate negative effects and enhance positive ones. Specific research questions could be: *How do the interrelationships amongst the relational, cognitive, affective and behavioural dimensions of CX affect the impacts of chatbots on customer trust and retention? How can chatbots handle customer complaints and issues, effectively transforming them into positive feedback?* People's reactions to the automated responses provided by chatbots are usually subjective and strictly dependent on the situation; however, they can also be understood and mitigated to favour customer trust and retention.

Fourth, we confine our focus to classifying overarching themes that can either enhance or diminish CX. Nevertheless, we identified only a few themes for each CX dimension. Future research could adopt a more granular level of analysis and outline other factors affecting the relational, cognitive, affective and behavioural dimensions. Specific research questions could be: *How can different cultures with distinct norms, values and communication styles influence how individuals interact with chatbots? How can a smart service impact the level of intimacy and social connection experienced?* People's cognitive biases, such as confirmation bias or the availability heuristic, can influence their perception of context and affect decision-making processes. Past experiences, both positive and negative, can shape an individual's emotional responses and affective states.

Finally, our research is limited to an analysis of conversations without actively engaging (or interacting) with customers. Additional studies could delve deeper into customer perceptions and experiences throughout their customer journey. Specific research questions could be: *How do customers perceive the role of chatbots? What specific pain points or challenges do customers encounter along their journeys when using chatbots?* Researchers can gain valuable insights into consumer attitudes towards chatbots as well as identify potential areas where they may not fully meet customer needs and expectations through surveys or interviews. Insights gained about consumer preferences and habits may be utilised to create chatbots that seamlessly enhance the overall CX.

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Appendix

General observations	Number of users	1,330
	Number of messages exchanged	8,406
	Number of conversations held	1,301
	Average messages per user	7
Groups of information requested	Purchase	3,560
	Delivery	1,439
Information is shown in descending order	Exchange / return	1,119
	Greetings	420
	Company information	189
Most requested interactions	Terms of payment	1,243
	Return/exchange methods	1,155
Information is shown in descending order	Delivery status	1,042
	Shipping conditions	341
	Availability of sizes and colours	289
	Product size	246
Proportions of conversations and single messages managed by artificial intelligence		

Conversations — Solved independently / Scaled to an operator
Single messages — Solved independently / Scaled to an operator
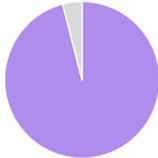
Source(s): Table created by authors

Table A1.
Principal data on the information gathered about chatbot interactions