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Abstract

Purpose:

Customer service conversations are becoming increasingly digital and automated, leaving service encounters impersonal. The purpose of this paper is to identify how customer service agents and conversational AI applications can provide a personal touch and improve the customer experience in customer service. We offer a conceptual framework delineating how text-based customer service communication should be designed to increase relational personalization.

Design/methodology/approach:

This paper presents a systematic literature review on conversation styles of conversational AI and integrates the extant research to inform the development of our proposed conceptual framework. Using social information processing theory as a theoretical lens, we extend the concept of relational personalization for text-based customer service communication.

Findings:

The conceptual framework identifies conversation styles, whose degree of expression need to be personalized to provide a personal touch and improve the customer experience in service. The personalization of these conversation styles depends on available psychological and individual customer knowledge, contextual factors such as the interaction and service type, as well as the freedom of communication the conversational AI or customer service agent has.

Originality:

The article is the first to conduct a systematic literature review on conversation styles of conversational AI in customer service and to conceptualize critical elements of text-based customer service communication required to provide a personal touch with conversational AI. Furthermore, we provide managerial implications to advance customer service conversations with three types of conversational AI applications used in collaboration with customer service agents, namely conversational analytics, conversational coaching, and chatbots.

Keywords: *customer service, customer experience, artificial intelligence, relational personalization, chatbots, empathy*

1. Introduction

Intensified digitization and declining human contact in customer service are making it increasingly difficult to personalize conversations and facilitate personal touch (Soulliard, 2019). This has become a pressing issue as evidenced by companies making radical shifts in their customer service practices, such as discontinuing telephone-based customer service (Maruf, 2022). The personal touch is often left behind when the channel of customer service is shifted to the digital sphere and text-based communication is used via live chats, social media, or chatbots (Kull *et al.*, 2021). Providing a personal touch can be understood as contributing an element or feature to a conversation to make it less impersonal (Oxford Dictionary, 2023). According to a recent study, 80% of customers' frustration increased after using a chatbot, while 72% found it was a waste of time (Westfall, 2022). Particularly, in text-based communication, many cues relevant to providing a personal touch, such as emotions and feelings are not easily transmitted and understood (Walther, 1992). A number of customer surveys show that the conversation style in text-based customer service communication is important for personalization and that the adaptation of digital customer service channels is hindered by a lack of conversational care through poor and impersonal responses (Kayako, n.d.; Zendesk, 2022). This becomes apparent when companies start introducing conversational AI to automate their customer service. By implementing conversational AI, customer service is often provided by a service agent-AI collaboration in which service agents and conversational AI share tasks (Huang and Rust, 2022; Le *et al*., 2023). The rise of conversational AI applications in business is shown in industry studies, which found that a 136% growth rate exists for chatbot adaption in service organizations (Salesforce Research, 2020) and that 79% of contact center leaders plan to invest in greater AI capabilities over the next two years (Senawi *et al.*, 2021). This inevitable automation of customer

service through conversational AI requires a careful look at how conversational AI and customer service agents can collaboratively personalize customer service conversations by providing a personal touch (Le *et al.*, 2023). This is particularly important as duplicating human-to-human interaction may not produce the best results for AI in customer service (Naito *et al*., 2023).

Conversational AI broadly refers to a group of technologies that together enable communication between humans and computers. It is capable ~~to understand~~of understanding and ~~generate~~generating human language using natural language processing techniques such as intent detection, classification, language modeling, and text generation (Adewumi *et al.*, 2022; Gkinko and Elbanna, 2022). In text-based customer service, there are three primary applications of conversational AI that vary in their collaborative approach with customer service agents, their underlying technology, and their role in customer service (see Table I). Conversational analytics supports service agents in their interactions with the customer, by deploying natural language understanding (NLU) technology, such as sentiment analysis, part-of-speech tagging, or intent detection, to extract cues and insights from previous and ongoing customer service conversations and feedback these to customer service agents. Exemplary applications include enforcing compliance in call centers ("What Is Conversational Analytics?", 2022) or implementing root-cause analysis and monitoring agent language ("Conversational Analytics: Trends, Use Cases, and Predictions", 2022). Conversational coaching extends conversational analytics by using technologies from the domain of recommendation systems. Here, conversational AI further converts extracted cues into actionable insights. In customer service conversations, conversational coaching provides guidance to customer service agents on the most effective way to engage with the customer but operates discreetly in the background. In call centers, conversational coaching is already implemented and may involve recommendations, such as

adjusting volume or tone. In text-based communication, conversational coaching can manifest as features like message autocompletion or providing the next-best responses (Shein, 2022). It can further be used to simulate conversations and train new agents ("Zenarate", 2023). The third, most prominent application of conversational AI in text-based customer service is chatbots, which are used to free up agents and serve customers more quickly. Compared to the previous two types, chatbots automatically and directly interact with the customer using human-like language. It utilizes natural language as input and output to engage in conversation with its users (De Keyser *et al.*, 2019). Due to their different level of industry maturity and automation, each conversational AI application augments different types of human intelligence for collaborative service provision (Huang and Rust, 2022). Very little is known about how conversational AI applications in collaboration with customer service agents can personalize customer service conversations and provide personal touch.

Table I about here

Personalizing the customer service interaction is a core part of a great customer experience (Econsultancy, 2019; Zanker *et al.*, 2019), which has widely been identified as a crucial factor of sustainable competitive advantage (Becker and Jaakkola, 2020; Bolton *et al.*, 2018; Lemon and Verhoef, 2016; McColl-Kennedy *et al.*, 2019; Zaki, 2019). An improved customer experience can attract and retain customers by increasing their satisfaction (Kocaballi *et al.*, 2019), loyalty (Bolton *et al.*, 2014), and brand engagement (Chandler and Lusch, 2015). Therefore, when conversational AI and service agents work together effectively to personalize customer service conversations and add a personal touch, it not only reduces customer frustration but also enhances their experiences, leading to increased satisfaction and loyalty. As a result, our paper aims *to better understand how customer service agents and conversational AI can*

collaboratively personalize text-based communication by providing a personal touch to improve customer experience in customer service.

To better understand how conversational AI can personalize text-based communication by providing a personal touch, our paper follows the research design of theory adaption suggested for making conceptual contributions (Jaakkola, 2020). Therefore, we first start by providing a conceptual background to create a common understanding of the relevant concepts of customer experience in customer service and personalization. We then revisit the focal theory of relational personalization and show that it is suitable to guide the design of conversational AI applications for improving customer experience in customer service with personalization. However, we argue that it lacks relevant aspects on how this can be done in text-based customer service communication. We adapt the theory of relational personalization by informing it with the social information processing theory (SIPT) (Walther, 1992, 1996). This expands the application domain of relational personalization to computer-mediated communication and delineates the concept of relational personalization for designing conversational AI applications in text-based customer service communication. Our research methodology involves conducting a systematic literature review to assess the extent to which previous studies have examined text-based communication in customer service and analyzed the impact of various conversation styles. We then utilize the theoretical lens of SIPT to analyze the findings and develop a conceptual framework. Theoretical contributions are discussed, and a set of guidelines and managerial implications are derived. Finally, we conclude by outlining future research directions aimed at advancing our understanding of human-machine collaboration for delivering personalized experiences in text-based customer service.

2. Conceptual background

2.1 Customer experience in customer service

Customer experience (CX) as a concept has been defined as "holistic in nature, [which involves] the customer's cognitive, affective, emotional, social, and physical response" (Verhoef *et al*., 2009, p. 32). Several other authors propose similar definitions (e.g., De Keyser *et al*., 2015; McColl-Kennedy *et al*., 2019; Schmitt, 2011). Customers interact with companies through various touchpoints, including digital, physical, and social, along the customer journey (Bolton *et al*., 2018; Lemon and Verhoef, 2016). At these touchpoints, the customer experience is cumulatively built through non-deliberate, spontaneous responses and reactions to stimuli embedded within a specific context (De Keyser *et al*. 2020). The touchpoints differ in terms of firm control, nature or stage as they can be for example initiated through online surveys, emails or requests for feedback or even initiated by the customer itself through social media posts or online reviews. Customer service represents one of these touchpoints along the customer journey, where the quality of interaction is a critical facet of the customer experience (Groth *et al.,* 2019). It therefore represents one step of the customer journey, along which the customer experience is formed. Each step, or touchpoint, provides an opportunity for the firm to personalize the interaction between the customer and the firm, which has been widely shown to improve the customer experience (Hänninen *et al.*, 2019; Riegger *et al.*, 2021; Sujata *et al.*, 2019; Tyrväinen *et al.*, 2020).

2.2 Relational personalization

In generic terms, personalization can be conceptualized as "a process that changes the functionality, interface, information access, and content, or distinctiveness of a system to

increase its personal relevance to an individual or a category of individuals" (Fan and Poole, 2003, p. 2125). The personalization process, compared to customization, is initiated by the firm and aims to improve the benefits of the receiver of personalization efforts (Piccoli *et al*., 2017). However, previous research shows that the personalization efforts provided by the firm (actual personalization) may not always be perceived in the same manner by the customer (perceived personalization) (Lambilotte *et al.,* 2022). Recent research findings show that it is often the perceived personalization that plays a crucial role in driving desired ~~outcome~~outcomes such as improved attitudes toward advertisements (Li, 2016) or increased attention towards advertising (Maslowksa *et al*. 2016). In service, the personalization process consists of two main ~~subprocesses~~sub-processes, namely learning and matching (Murthi and Sarkar, 2003). Within the learning stage, information about the individual is gathered to build a customer profile (Adomavicius and Tuzhilin, 2005). Matching involves adapting the elements of the interaction or touchpoint based on the learned preferences and information of the individual customer (Adomavicius and Tuzhilin, 2005). The rise of automation technology such as AI has significantly increased the performance of personalization opportunities through the ease of collecting more individual data and finding patterns for better matching (Ameen *et al.*, 2021; Bilgihan *et al.*, 2016; Sujata *et al.*, 2019).

Several approaches have been made to classify personalization approaches and thus make them more comprehensible. One of the first classifications was done by Hagen *et al.* (1999), who differentiated personalization applications based on the company's knowledge about the customer (poor vs. rich customer profile) and their tailoring approach (reactive vs. proactive). This led to a distinction between smart (rich profile and proactive tailoring), lazy (rich profile and reactive tailoring), overeager (poor profile and proactive tailoring), and trivial (poor profile

and reactive tailoring) personalization, arguing for a shift towards smart personalization. Other differentiations are made over variables such as time (dynamic vs. static), or proactivity in gathering information (intrusive vs. non-intrusive) (Tuzhilin, 2009). A more recently used differentiation of personalization was introduced by Fan and Poole (2006) classifying personalization according to its motives and goals, into two dimensions: their orientation (affective vs. utilitarian) and premise of use: (individual vs. interactional) (Dzulfikar *et al.*, 2018). Fan and Poole (2006) thereby distinguish between architectural, instrumental, relational, and commercial personalization.

Relational personalization ~~(affective and~~ is particularly relevant for the customer service context, as it is a type of personalization that is characterized as interactional~~)~~ and affective, as opposed to utilitarian or individual (Dzulfikar *et al.*, 2018). When a customer approaches the customer service, it becomes an interaction between the customer and the customer service. Further, to provide a personal touch, personalization has to occur on an affective level encompassing experience of feeling or emotion. Relational personalization is defined through ~~four~~three different characteristics. First, it focuses on the creation of social relationships by giving individuals a sense of well-being (Fan and Poole, 2006). The underlying assumption is that the user will feel the system is more relevant to them if the system involves them in meaningful relationships with others (Fan and Poole, 2003). Second, relational personalization can take diverse forms, including computer-mediated interpersonal communication. One goal of relational personalization is to enhance the efficiency and effectiveness of interpersonal communication through personalized conversations. ~~Third, relational personalization can be characterized as interactional and affective as opposed to utilitarian or individual, as stated by~~

~~Dzulfikar *et al.* (2018). Fourth~~Third, the fulfillment of emotional needs, next to socialization, is further required to enable relational personalization (Chandra *et al.*, 2022).

2.3 Relational personalization and customer experience

Previous research has shown that personalization has a positive relationship with customer loyalty (Ameen *et al*. 2022; Ball *et al*. 2006), which is moderated by the effect of personalization on the emotional elements of customer experience (Tyrväinen *et al.* 2020). Customers tend to evaluate their experiences as being memorable and unique which eventually increases their loyalty (Fang 2019). Further research has shown that personalization can evoke positive emotions (Pappas *et al*. 2014), and address the emotional response of the customer experience. In customer service interactions, perceived personalization was found to be associated with the friendliness and expertise of virtual agents, which can lead to more social service encounters and higher satisfaction (Verhagen *et al*. 2014). These studies show that, in alignment with the conceptualization of relational personalization, personalizing the customer-firm interactions, emotional and social elements of the customer experience can be addressed and subsequently evoke outcomes such as customer satisfaction and loyalty.

Huang and Rust (2020) argue that ~~when in order to~~to facilitate relational personalization in service, the learning phase of the service personalization process (Murthi and Sarkar, 2003) should focus on comprehending the customer experience. This learning process can be accomplished through the utilization of AI techniques such as speech emotion recognition or sentiment analysis, which aim to identify the emotional and affective aspects of the customer experience. Additionally, conversational AI and deep learning can be employed to understand and model past interactions and their patterns. (Huang and Rust, 2020). By establishing a connection between relational personalization and AI techniques, Huang and Rust (2020)

demonstrate the applicability of the theory of relational personalization to inform the design of conversational AI applications specifically for improving customer experience.

2.4 Social information processing theory for relational personalization

Relational personalization originates from the area of information systems and takes a system view on enabling interpersonal communication. The focus is on the design of channels and systems, which enable the user to form relationships with others. Fan and Poole (2003, p. 2126) state that "relational personalization can be enabled by providing a convenient platform [for the user] to interact with others". This is reiterated by Dzulfikar *et al.* (2018) who describe the goal of relational personalization to create a common, convenient platform for social interaction that is compatible with the individual's desired level of privacy. However, to investigate how conversational AI can provide a personal touch using text-based communication, we need to know in what way the language should be adapted based on the knowledge about the customer. Although relational personalization gives a platform for designing conversational AI applications, it does not explain how customer service experience can be improved with communication in text-based customer service conversations. The system view of relational personalization does not address how to design communication between users and the use of language with conversational AI. Therefore, there is a need to extend this relational personalization concept and identify key elements required to design conversational AI applications in text-based customer service to improve relations. We do so by focusing on the communication between the customer and customer service and utilizing the established SIPT theory as a lens to extend the concept of relational personalization with a focus on computer-mediated communications. This allows us to create a more detailed understanding of how conversational AI can provide a personal touch and further lay out practical guidance for the

design of conversational AI applications to improve customer service experience in text-based customer service conversations.

SIPT is an interpersonal communication theory specifically for computer-mediated communication. It was developed by Walther (1992) and explains how relationships can be formed in settings that lack nonverbal cues such as text-based customer service conversations. The theory explains that online interpersonal relationships can demonstrate the same or an even greater level of relational dimensions as traditional face-to-face relationships, but may take longer to form (Walther, 1992). While similar theories, such as social presence theory (Cui *et al.*, 2013), social penetration theory (Taylor, 1968), or uncertainty reduction theory (Berger and Calabrese, 1975) provide explanations of how actors form social relationships, SIPT extends their perspective by focusing on communication solely mediated through computers (Walther, 1992). Compared to theories explaining the usage of computer-mediated communication such as media richness theory and uses and gratification theory, SIPT focuses distinctly on relationships and combines theories of relationship building and text-based communication. Therefore, it complements the concept of relational personalization by extending it through a focus on text-based communication for building relationships. As a result, we believe it helps to evaluate and explain in more detail how technologies such as conversational AI can provide a personal touch and improve the customer service experience.

From a personalization process perspective, we know that knowledge about the individual has to be gathered first before personalized actions are performed to enable communicators to adapt their language, style, and other cues to develop relationships (Walther *et al.*, 2005). Walther (1996) argues that text-based communication can evolve through three phases: impersonal, interpersonal, and hyperpersonal communication. As per definition, providing a

personal touch to a conversation therefore allows it to evolve through those three phases. Moving from impersonal to interpersonal communication enables the development of relationships but requires the message to be adapted based on knowledge about the other on a psychological and individual level (Walther, 1992, 1996). Interpersonal communication is achieved when communicators develop individuating representations of one another's psychological make-ups: "As interpersonal knowledge accumulates, communicators express more personal messages. This approach accounts for the presence of more personalized impressions and messages transmission through ongoing synchronous communication, as well as for the more task-oriented and impersonal messages in time-limited CMC among interactants" (Walther, 1992, p. 72). In hyperpersonal communication, communicators select their self-presentation to appear more favorable. In, text-based communication the distance in time and space between the communicators enables this selection (Walther, 1996).

SIPT provides a theoretical lens for relational personalization, which allows to focus on text-based communication. It further specifies what happens during the iterative learning and matching process of personalization and details that it is necessary to learn and iteratively accumulate affective knowledge on an individual and psychological level. It further specifies that in the matching phase of relational personalization, the adaption of language, style, and cues helps to provide a personal touch that allows to move from impersonal to interpersonal communication. While the new theoretical lens further expands the application domain of relational personalization, it does not specify which knowledge needs to be learned or which language and conversation styles need to be matched. Therefore, we conduct a systematic literature review to develop a conceptual framework and identify how exactly customer service

agents and conversational AI applications can provide a personal touch and improve the customer service experience.

3. Systematic literature review

We ~~conduct~~conducted a systematic literature identifying to what extent previous research has addressed text-based communication in customer service and analyzed the effect of different conversation styles and the factors their success depends on. The literature allows us to derive a conceptual framework delineating how conversation styles need to be personalized to provide a personal touch, improve the customer experience in customer service, and ultimately evoke increased loyalty and satisfaction. To understand how conversational AI communicates in customer service, we follow previous work (e.g., Antons and Breidbach 2018; Furrer *et al*. 2020; Silva *et al.* 2023; Villarroel Ordenes and Zhang 2019; Zaki and McColl-Kennedy 2020) in systematically reviewing journal articles. A systematic review helps to increase the validity of the literature review and to minimize ~~the~~ bias by using an organized, transparent, and replicable procedure (Silva *et al*. 2023).

We identify relevant articles focusing on verbal text-based communication techniques of conversational AI in customer service, by adapting the approach of Van Pinxteren *et al.* (2020), who derived search terms for communication for conversational agents. We omit their focus on relational mediators and neglect the associated search terms. Instead, by focusing on customer service applications of conversational AI, we add the terminology of "customer service" or "customer support". Further, we include conversational AI-specific search terms as previously mentioned, namely "conversational coaching", "conversational analytics", and "conversational AI". Through cross-referencing, we further identify "interaction" as a valuable search term for identifying research concerning the interaction between customers and conversational AI.

Initially, we retrieved 83 articles from the Web of Science database. Subsequently, we screened the articles to check if they ~~meet~~met our inclusion criteria. For an article to be included, we applied four criteria. First, the article was in English, was published, and was available in any online archive or database. Second, the article investigated a customer service-specific interaction. Third, the article investigated verbal text-based communication rather than non-verbal communication such as gestures or appearances (e.g., user interface, voice, gender). Fourth, the study of the article investigated conversation styles within non-verbal text-based communication. Often, the effect of using chatbots in general compared to humans is investigated without any specific focus on verbal communication. The search process can be found in Figure 1. After applying the four criteria, we were left with 19 articles published between 2019 and 2023.

Figure 1 about here

An overview of the articles identified through our systematic literature review can be found in Table II. The table displays previous research on communication between conversational AI and customers in text-based customer service conversations. It provides information about the customer service context in which the study took place, underlying theories and concepts, key findings, and specifically the conversation styles investigated and which dependent variable they influence. In the following, we present the conceptual framework derived from the previous literature and guided by SIPT and relational personalization.

Table II about here

4. Conceptual framework

In this section, we present the conceptual framework (see Figure 2), which we built based on the theoretical lens provided by SIPT and relational personalization and on the findings from

our systematic literature review. The conceptual framework applies within the context where the customer reaches out with a problem or inquiry to customer service through the preferred channel such as live chat, instant messaging, or chatbots. On the other side of the conversation, a customer service agent responds to the customer by sending them a text or emojis initiating synchronous verbal communication (De Keyser *et al.*, 2019; Miao *et al.*, 2022). Within that process, conversational AI applications can help the customer service agent to find the right response or even automate conversations with chatbots. The conceptual framework as shown in Figure 2 depicts how responses in text-based customer service conversations need to be personalized on an affective level to improve the customer service experience. Figure 2 shows the process elements of personalization, namely learning and matching and their iterative adaption (Murthi and Sarkar, 2003). Further, the focus on relational personalization guided the review of the literature by focusing on learning affective elements about the customer and matching the interaction to fulfill emotional needs and socialization (Fan and Poole, 2006). The introduction of SIPT to relational personalization informed that learning on the affective level involves understanding individual and psychological knowledge (Walther, 1992, 1996) and that matching needs to happen on the level of verbal communication (Walther *et al.*, 2005). As a result, we reviewed the literature and their discussed verbal conversation styles with respect to how they fit with the characteristics of relational personalization.

In the subsequent section, we explore different verbal conversation styles employed in text-based customer service communication, which need to be aligned as part of the personalization process. Further, we examine the role of the freedom of communication (e.g., scripted, interactive, free text) in enabling the personalization of the conversation styles. Drawing from the articles in our systematic literature review, we identify the affective

knowledge on an individual and psychological level, which needs to be iteratively accumulated as part of the learning process to construct a customer profile. As depicted in Figure 2, we demonstrate the influence of the customer service encounter type and the role of conversational AI, as well as the impact of the customer service nature throughout the customer journey.

Figure 2 about here

4.1 Conversation styles

4.1.1 Empathy

Responding appropriately to others' emotions is often referred to as empathy. Looking at the previous research on conversation styles used by conversational AI, a variety of literature addresses empathetic expressions (e.g., Adam *et al.,* 2021; Kull *et al*., 2021; Tsai *et al.,* 2021; Xu *et al*., 2022). Previous research findings indicate that when chatbots demonstrate empathy, customers are more inclined to respond positively and comply with requests for providing service feedback (Adam *et al.,* 2021) and when chatbots express emotions it positively impacts customer satisfaction and engagement (Tsai *et al*., 2021). Similarly, expressed emotional concern of chatbots boosts customer satisfaction as chatbots are perceived as warmer (Xu *et al.,* 2022). Kull *et al.* (2021) found that when expressing a warm (vs. competent) initial customer message, chatbots can increase brand engagement.

Communicating on an interpersonal level requires adaption to affective knowledge, such as customers' emotions, feelings, or moods (Walther, 1996). Empathy is an interpersonal process that depends upon the relationship between the parties and the interpersonal context (Main *et al.*, 2017). Expressed empathy can be an indication of emotional intelligence and can evoke desired emotions and experiences with emotional contagion (Hennig-Thurau *et al.*, 2006; Kernbach and Schutte, 2005). The findings show that reacting to the affective state of the customer by adjusting

the conversation style toward more empathy can improve customer service outcomes such as satisfaction engagement and loyalty and more generally ~~also~~ the customer experience (Bawack *et al.*, 2021; Groth *et al.*, 2019; Spring *et al.*, 2019). However, the analysis also shows that empathy is not always beneficial for example luxury brands are better off not using emoticons in chatbot interactions as it dampens the brand status perception (Li and Shin, 2023), and positive emotions expressed by an AI agent are less effective in facilitating service evaluations compared to a customer service agent (Han *et al*. 2022). From other modalities, we also know that in call center conversations some customers indicated a preference for objectivity rather than empathy (Clark *et al.,* 2013). The findings show that the degree of expressed empathy needs to be personalized to improve the customer experience. The affective nature of empathy and its function as a reaction to customer emotion fit within the realm of relational personalization and its need to fulfill emotional needs (Chandra *et al*., 2022).

~~Finding~~Proposition 1a: The personalization of the degree of expressed empathy in text-based customer service conversations positively impacts the customer experience.

4.1.2 Small Talk

The systematic literature review further showed that small talk as a conversation style can create a social presence and is associated with desirable outcomes in customer service conversations (Nguyen *et al.* 2022). Similarly, Xu *et al.* (2022) have shown that social-oriented communication (vs. task-oriented), such as customary greetings, social praise, or well-wishing boosts customer satisfaction. The social presence, induced by small talk, can mediate the effect of anthropomorphic ~~qualities~~quality cues on a customer's intent to comply with a chatbot's request for service feedback (Adam *et al.,* 2021). Small talk, therefore, addresses the need for relational personalization for socialization (Chandra *et al*., 2022).

Prior research shows that we can distinguish between two aspects of a message: content and relational (e.g., Burgoon and Hale, 1984; Watzlawick and Beavin, 1967). While content refers to the task orientation of the conversation, the relational aspect refers to the implied interpersonal relationship embedded in the message (Ramirez *et al.*, 2007). According to SIPT, for customer service conversations to advance from impersonal to interpersonal communication more social information needs to be added to the conversation (Walther, 1996). This is reflected in the previous literature on small talk as a conversation style for text-based customer service communication. However, there are situations where impersonal communication can be beneficial, as it reduces barriers to effectiveness for task completion and allows for a focus on task resolution (Walther, 1996). As a result, there is a need to personalize the degree of expressed small talk. Therefore, we found:

~~Finding~~Proposition 1b: The personalization of the degree of expressed small talk in text-based customer service conversations positively impacts the customer experience.

4.1.3 Humor

Similar to small talk, the results of the systematic literature review highlight other conversation styles related to the relational level of a message (Ramirez *et al.,* 2007). Another verbal social cue ~~which~~that has been investigated in text-based communication in customer service by conversational AI is humor. Schanke *et al.* (2021) show that humor can be beneficial in the process of buying-back clothes. However, it also highlights that humor can result in notable increases in offer sensitivity. Also, Shin *et al.* (2023) show that socially appropriate humor enhances service satisfaction when used by a chatbot but not by an agent. The positive effect on service satisfaction does not occur for aggressive or perceived inappropriate humor. ~~Therefore we conclude:~~Similar to small talk humor addresses the need for socialization of

relational personalization (Chandra *et al*., 2022). Further, the findings indicate that the expression of humor needs to be personalized based on the context and customer. Therefore we conclude:

~~Finding~~Proposition 1c: The personalization of the degree of expressed humor in text-based customer service conversations positively impacts the customer experience.

4.1.4 ~~Personal pronouns~~Customer names

Special attention has been paid to how customers are greeted and referred to as part of the conversation. The literature review shows that greetings by name positively impact consumer engagement, satisfaction, and brand likability (Tsai *et al.,* 2021). Using personal pronouns can also enhance purchase intention through a sense of ease and understanding of the product (Whang *et al.,* 2022). On the other hand, research has demonstrated that excessive and frequent use of the customer's and chatbot's names can have a negative impact on customer satisfaction, particularly when the customer is feeling angry (Crolic *et al.,* 2022). ~~Therefore we found:~~Using customer names responds to the need of relational personalization to create a meaningful conversation (Fan and Poole, 2006). However, as the findings show, there is a need to personalize the usage based on affective customer information. Therefore we found:

~~Finding~~Proposition 1d: The personalization of using ~~personal pronouns~~customer names in text-based customer service conversations positively impacts the customer experience.

4.1.5 Data-driven communication

Two articles mention the role of quantitative or data-driven communication (mentioning numbers) and highlight their relevance when chatbots communicate with the customer. Weiler *et al.* (2022) found that a specific quantitative linguistic form plays a moderating role in mitigating the impact of chatbot failure on perceived performance and discontinuation. Using data-driven

communication styles can increase customer satisfaction by making them feel more informed and more natural when used by a chatbot, not a human (Naito *et al.*, 2023). However, compared to quantitative communication, Weiler *et al.* (2022) found that qualitative communication moderates the effect of trusting beliefs on discontinuation intentions. ~~Therefore we conclude:~~It shows that the degree of expressed data-driven communication relates to trust, an element driven by emotions and affect (McAllister, 1995) and therefore the relational aspect of personalization. The findings further show that the success depends on the contextual information. Therefore we conclude:

> ~~Finding~~Proposition 1e: The personalization of the degree of expressed data-driven communication in text-based customer service conversations positively impacts the customer experience.

4.2 Freedom of communication

Results from the systematic literature review show that personalizing the conversation style is often dependent on how free the customer service agent or conversational AI is in communicating with the customer. For example, Go and Sundar (2019) find that customer satisfaction increases if customer service is allowed and able to follow up on customer responses and has a high level of message interactivity. The degree of freedom in communication also influences the conversation style as shown by Sands *et al.* (2021) who investigates how the use of service scripts affects satisfaction and purchase intention and found that service scripts in combination with an educational conversation style have a positive effect. Service scripts can be seen as predefined instructions or verbal strategies used in customer service interactions to direct service agents on how to engage with customers and provide consistent service (Tansik and Smith, 1991). The degree of standardization in the responses often depends on the service

context as shown by Wei *et al.* (2022), who highlight that different customer service message types in conversational AI vary significantly in length and text similarity. In other modalities, such as call centers, various research (e.g., Schau *et al.,* 2007; Victorino *et al.,* 2012; Victorino and Bolinger, 2012) have examined the impact of scripted vs. natural or improvised responses in customer service and found that scripted responses can have both positive and negative effects on the customer experience. With conversational AI, the text is either created by generating natural responses or by retrieving pre-written responses from scripts based on keyword searches (Miao *et al.*, 2022; Sands *et al.*, 2021). Natural responses have a higher degree of freedom and therefore allow for more free-flow conversation (Miao *et al.*, 2022). However, Haugeland *et al.,* (2022) show that due to a lack of chatbot flexibility and adaptivity, free text interactions were not found to increase hedonic quality. During text-based customer service conversations, SIPT states that relationships evolve dynamically (Walther, 1992), necessitating dynamic personalization. ~~These findings suggest that while this discovery is important, it does not necessarily imply that there should be an automatic increase in the degree of freedom when communicating with the customer.~~

~~Finding~~Proposition 2: The ~~personalization of the~~ degree of freedom ~~in~~of communication enables the personalization of conversation styles in text-based customer service ~~conversations positively impacts~~and thus the impact on the customer experience.

4.3 Psychological and individual customer knowledge

Building a knowledge base to understand the customer's psychological makeup is essential to know how to best adjust the conversation styles. This represents the first step of the personalization process and is fundamental to enabling relational personalization. Relational personalization in particular requires learning from the affective, social, and emotional elements

of the customer experience. It requires gathering data about the customer from text-based conversations. According to SIPT, interpersonal knowledge needs to be accumulated to create more personal responses. The articles analyzed from the systematic literature review show that this interpersonal knowledge can be accumulated within the current interaction or through previous customer experiences we refer to as relational history.

4.3.1 Relational cues in the current interaction

When looking at the systematic literature we can see that the personalization attempts depend on cues picked up in the conversation. For relational personalization cues representing the affective, social, and emotional experience are particularly relevant. The literature shows that initial customer emotion can play a critical role, as Crolic *et al.* (2022) have found that when customers enter a chatbot-led service conversation in an angry emotional state, chatbot anthropomorphism has a negative effect on customer satisfaction. Nguyen *et al.* (2023) show that a moderate level of social presence, and selected social cues used by customers are associated with desired customer service outcomes. Both in our literature review and as stated by Nguyen *et al.* (2023), it is not the social presence and cues of the customer ~~which~~that are discussed in the literature, but the ones of conversational AI.

Building on these articles, the psychological and individual knowledge ~~which~~that can be gathered within the conversation can be conceptualized as verbal social cues that trigger a reaction in the forms of emotional, cognitive, or behavioral ~~response~~responses (Feine *et al.*, 2019). The expression of social cues is characteristic of interpersonal communication (Feine *et al.,* 2019). Social cues can be verbal or non-verbal, whereas verbal cues can be content-related or style-related. In alignment with Burgoon and Hale (1984) and Watzlawick and Beavin (1967), we know that a message can have both, a content and a relational level, with the latter being the

focus of relational personalization. The initial customer emotion as highlighted by Crolic *et al.*, (2022), can when expressed, provide social information (Kleef, 2010). They influence the observer by eliciting affective reactions and allowing them to infer information about their feelings and attitudes (Kleef, 2010). Therefore we conclude:

~~Finding~~Proposition 3a: Learning the social cues on a relational level within the conversation provides information about the psychological and individual customer knowledge and ~~improves~~enables the relational personalization of text-based customer service conversations.

4.3.2 Relational history

A recurring concept discussed in the reviewed articles is the pre-existing relationship between the customer and the brand or company prior to engaging in a customer service conversation. Kull *et al.* (2021) show that the distance between the brand and the customer mediates the effect of warm initial chatbot messages as it makes the customer feel closer to the brand. Similarly, Sands *et al.* (2021) show that the positive effect of educational scripts used by service agents is explained by developed rapport, which is often developed over a period of time.

These findings can be explained by SIPT, which states that interpersonal knowledge accumulates over time and allows for more personal messages. Previous communication on a relational level, described as relational history, was found to be associated with greater immediacy and receptivity in communications (Burgoon *et al.*, 1987). The history on a relational level thereby reflects the focus of relational personalization on the interaction and affect. From a customer experience perspective, Lemon and Verhoef (2016) conceptualized the current customer experience as a result of previous interactions and experiences along the customer

journey. Therefore, relational history can be conceptualized as previous customer experiences. We find:

~~Finding~~Proposition 3b: Learning the relational history provides information about the psychological and individual customer knowledge and ~~improves~~enables relational personalization of text-based customer service conversations.

4.4 Contextual factors

4.4.1 Interaction type

A dominant theme discussed in the literature is the comparison between human and AI interactions. As displayed in Table I, conversational AI applications have different types of collaboration between the customer service agent and AI, which can result in AI-supported service encounters, in which the customer service agent ultimately interacts with the customer and AI-performed service ~~encounter~~encounters, such as chatbots. For example, Shin *et al.* (2023) show that only when used by a chatbot, not a human, socially appropriate humor enhances service satisfaction. Similarly, Han *et al.* (2022) find that expressing positive emotion as an AI agent is less effective compared to service agents in facilitating service evaluations. In general, service agents are perceived to be more competent and warmer than chatbots, when they express sympathy (Lou *et al.*, 2022). The impact of expressing and personalizing various conversation styles, such as empathy, data-driven communication, or humor, on customer service outcomes and customer experience is contingent upon the specific type of interaction involved. Therefore we find:

~~Finding~~Proposition 4a: Human- vs. AI-faced customer service encounters provide contextual characteristics, whose consideration improves the positive impact of relational personalization of text-based customer service conversations on the customer experience.

4.4.2 Service type

Customer service interactions occur throughout the entire customer journey, encompassing pre-purchase, purchase, and post-purchase stages as conceptualized by Lemon and Verhoef (2016). The systematic literature review included articles that examined customer service interactions at each of these stages. For instance, Kull *et al.* (2021) explored the impact of chatbot greetings on brand engagement when seeking information from a travel agency. Li and Shin (2023) analyzed the influence of emoticons on brand status perception as the first point of contact when inquiring about store location. In the purchase stage, Go and Sundar (2019) investigated the perception of chatbot humanness when choosing a digital camera for purchase, highlighting the satisfaction derived from message interactivity. Furthermore, studies such as Naito *et al.* (2023) focused on customers' informed feelings when chatbots employed data-driven communication during the process of buying new outfits, while Whang *et al.* (2022) explored the impact of personalized pronouns in chatbot messages during lipstick purchases. The unique nature of customer service interactions in each stage is emphasized by Song *et al.* (2022), who discovered that the credibility perception of chatbots was lower at the time of purchase, whereas trust in personalized recommendations was higher during the pre-purchase stage. In the post-purchase stage, empathy and small talk were subjects of investigation, as evidenced by Adam *et al.* (2021), who found that customers were more likely to comply with a chatbot's request for service feedback when it utilized small talk and empathy. Similarly, Han *et al.* (2022) revealed that positive emotions expressed by an AI agent had limited effectiveness in facilitating service evaluation. Comparable to Grewal *et al.*'s (2022) work on voice assistants across the customer journey, the post-purchase stage received more attention in terms of empathy and small talk analysis, our systematic literature review shows:

~~Finding~~Proposition 4b: Considering the contextual characteristics of the customer journey stage in which the customer service interaction occurs enhances the positive impact of relational personalization in text-based customer service conversations on the overall customer experience.

The nature of the customer service interaction can be further contextualized by the customer service request and the underlying relationship between the customer and the firm. Relational and transactional services differ in the degree to which service is provided over multiple interactions over time (Huang and Rust, 2017). A relational service allows to gather more information in the learning stage of relational personalization as described in the section about relational history. However, not every customer service interaction is relational and some customers prefer transactional interactions with low effort and short-term (Bitner, 1995; Huang and Rust, 2017). The systematic literature review highlights that the type of interaction can not only impact the psychological and individual customer knowledge available but also the personalization of the conversation styles. For example, Schanke *et al.* (2021) show that humor is beneficial for transaction outcomes, but that it also leads to significant increases in offer sensitivity. We conclude:

~~Finding~~Proposition 4c: The nature of the customer service interaction (transactional vs. relational) provides contextual characteristics, whose consideration improves the positive impact of relational personalization of text-based customer service conversations on the customer experience.

5. Discussion

5.1 Theoretical contribution

We contribute to customer service and personalization literature by building on our systematic literature review results, developing a conceptual framework, and presenting ~~findings~~propositions that can extend our understanding and knowledge of how conversational AI can help customer service improve customer experience. First, we enrich the adapted theory of relational personalization with findings from our systematic literature review on conversation styles of conversational AI in customer service. We then draw from the findings on individual conversation styles, such as small talk (Xu *et al.,* 2022) and empathy (Han *et al.,* 2022) to develop our conceptual framework and derive our ~~findings~~propositions. The conceptual framework extends the existing literature, which mainly refers to anthropomorphic design cues, by addressing and combining conversation styles as a design opportunity for a more personal touch. We further broaden the application domain of anthropomorphic design by contextualizing the interaction with different types of conversational AI applications, such as conversational analytics and coaching, and their individual interaction type.

Second, we extend the current understanding of relational personalization (Dzulfikar *et al.*, 2018; Fan and Poole, 2003, 2006; Tuzhilin, 2009) by introducing the theoretical lens of SIPT, which allows us to focus on computer-mediated communication via text-based. We further analyze literature to explore conversational AI's use to enable relational personalization. We propose how relational personalization can be used to design conversational AI applications, which help generate verbal communication by adapting it with the help of SIPT. The capability to improve the customer experience with conversational AI applications in customer service has so far been examined through characteristics, such as communication delays (Cheng *et al.*, 2022;

Schanke *et al.*, 2021), human characters such as name, age, gender (Araujo, 2018; Schanke *et al.*, 2021) or greetings (Araujo, 2018; Kull *et al.*, 2021). This shift helps us to understand how personalized language plays an important role in the design of conversational AI applications for improving customer service experience in text-based customer service.

Third, we respond to research calls ~~on advancing~~to advance the field of personalization by informing personalization efforts with psychological frameworks and computational methodologies (Salonen and Karjaluoto, 2016; Zanker *et al.*, 2019). We respond to this call by detailing the elements required for building a psychological-level picture according to SIPT and explain how these relate to conversation styles by drawing on findings from the systematic literature review. Conversation styles such as empathy and small talk can help address angry customers who have shown negative responses to chatbots previously (Crolic *et al.*, 2022).

Fourth, by addressing the problem of keeping the service encounter personal with conversational AI applications, we are advancing recent studies on the role of feeling AI and describing how this can be realized through theory and practice. While Huang and Rust (2020) postulate that conversational AI can be used to enable relational personalization in customer service and the first findings emphasize the role of chatbot greetings (Kull *et al.*, 2021) or the use of emojis (Li and Shin, 2023), we extend this research by focusing on the conversation styles throughout the text-based customer service communication. With our conceptual framework, we combine recent findings on the importance of small talk (Xu *et al.*, 2022), sympathy (Lou *et al.,* 2022), and empathy (Adam *et al.*, 2021) in customer service conversations.

5.2 Managerial Implications

This study also provides managerial implications by introducing a conceptual framework that can assist managers in making informed decisions when developing and deploying

conversational AI solutions in text-based customer service interactions. ~~The framework aids in comprehending the relevant factors involved in personalizing text-based communication to enhance the customer experience. We~~This research has shown that personalization on an affective level has many subtle facets and is conditioned by contextual factors. The success of personalized conversational styles therefore lies in the details and current practice lacks an understanding of the individual elements and how they interact. The framework aids in comprehending the relevant factors involved in personalizing text-based communication to enhance the customer experience. It can be utilized to analyze the individual elements of relational personalization and their impact on the customer experience within the context of an organization. This approach enables organizations to explore and assess the maturity of their conversational AI solutions with respect to understanding each element of psychological and individual customer knowledge and generating personalized conversation styles while also evaluating their effect on customer experience. Managers can use it as a checklist and roadmap toward enabling relational personalization.

From a strategic point of view, we recommend that organizations prioritize personalized conversation styles and the personal touch within their digitalization and automation strategies for customer service. This necessitates a shift in focus from operational efficiency and cost reduction through frequently asked questions (FAQ) automation to customer-centricity and prioritizing customer experience when designing and implementing conversational AI applications. ~~The framework can be utilized to analyze the elements of relational personalization and their impact on customer experience, using existing solutions and connecting and~~For example, in a flight inquiry scenario, where an existing customer is looking for last-minute information about their flight to New York, rather than just providing the information, the

conversational AI could detect a degree of fear in the customer message and in response additionally express purposeful small talk that can provide care, such as "*How exciting! Have you been to New York before?*". Alternatively, in a flight cancellation scenario with a new angry customer, expressed empathy, such as "*I feel very sorry for you"*, might have negative effects on the customer experience while expressed data-driven conversation styles such as, *"all of our remaining 3 flights to your destination today are booked out, however, we have 7 available seats for a flight tomorrow morning"* shows positive effects.

Further, the current adoption of conversational AI for relational personalization in practice is hindered by technical challenges such as the accuracy of classification models in detecting psychological and individual customer knowledge and the hallucination of generative models in generating personalized conversation styles. The framework can guide researchers and practitioners alike to improve existing solutions by training natural language understanding models with appropriate datasets such as emotional and empathic conversations~~, and more. This approach enables organizations to explore and assess~~ reflecting the ~~maturity~~relevant factors of ~~their~~ relational personalization. Additionally, the different types of conversational AI ~~solutions in understanding and generating personalized~~allow for a gradual increase of automation with varying levels of human customer service agent involvement who can help with checking formulated responses ~~automatically while also~~ and evaluating and thus improving their ~~effect on customer experience.~~accuracy.

Conversational analytics, which deploys natural language understanding technology, such as sentiment analysis, part-of-speech tagging, or intent detection, can help to extract cues in conversations to gather in-depth insights into customer behavior and realize aspects of the conceptual framework. With its core capability in natural language understanding, it is

particularly suited to address the psychological and individual customer knowledge of relational personalization. Conversational analytics can serve as an entry point and support customer service agents by providing knowledge about the customer on an affective level in real-time from customer service data such as social media, chatbots, emails, or live chats (Holmlund *et al.*, 2020; McColl-Kennedy *et al.*, 2019).

Conversational coaching can further convert extracted cues into actionable insights and can help customer service agents ~~to~~ deliver relational personalization by both gathering customer knowledge and matching the conversation style. It is a first step in driving automation in customer service while maintaining a personal touch. It can help to extract small details more efficiently and reduce the load of customer service agents. Especially when agents are more stressed and under time pressure, conversational coaching can help to preserve the personal touch otherwise lost and help to better manage companies' resources. The proposed conceptual framework also holds implications for reducing churn and increasing conversational AI adaptation. By incorporating personalized conversation styles and enhancing the customer experience, organizations can effectively address customer churn and encourage greater acceptance and adoption of conversational AI solutions. The framework enables managers to identify and implement strategies that resonate with customers to improve satisfaction and loyalty and reduce churn rates.

In fully automated conversations with chatbots, many customers feel that the personal touch is lost (Luo *et al*., 2019). When deploying chatbots in customer service, the framework can guide managers to continuously evaluate conversations and pay attention to the contextual factors influencing the decision-making behind the implementation. Moreover, by analyzing the elements of relational personalization and their impact on customer experience, organizations

can refine their conversational AI systems, making them more intuitive, user-friendly, and aligned with customer expectations. This iterative approach fosters greater customer engagement and promotes a seamless transition to conversational AI, ultimately driving higher rates of adaptation and utilization.

6. Conclusions and future research

Our paper provides a theory-driven conceptual framework for how text-based communication needs to be designed to improve customer experience in customer service. Following the ~~findings~~propositions can reduce customer service calls and ~~cost~~costs through higher digital customer engagement, and also increase customer satisfaction, loyalty, and well-being. We further investigated how conversational AI solutions together with customer service agents can provide relational personalization and a personal touch. Advancing relational personalization with SIPT further allowed us to contribute to the theory by expanding the application domain and delineating the theory for text-based communication in customer service.

~~Improving~~Building on the limitations of this study, improving customer experience in customer service with automated conversations has many significant future research avenues. ~~First,~~First, the proposed conceptual model is entirely based on the literature review. Future researchers should empirically test the elements and their impact on different customer service outcomes (e.g., loyalty, engagement, satisfaction) or a company's performance (e.g., customer acquisition, business revenues, cost reduction). ~~The empirical analysis should take the different service contexts into consideration. Further, we~~While our model depicts relevant contextual factors, empirical analysis should focus on industries or scenarios, which combine these contextual factors to draw contextualized conclusions. Second, the study cannot fully address the complexity of psychological and individual customer knowledge and how much knowledge

needs to be accumulated. We invite researchers to address the threshold of psychological and individual customer knowledge required to successfully match the conversation styles and address the questions after how many interactions relational personalization can successfully take place. ~~We focus~~Third, our study only focused on text-based communication ~~in this paper~~ but future researchers should examine what other elements are required for voice-based communication, as they have been demonstrated to have different effects on the customer (Flavián *et al.*, 2023). This should also be extended to service robots in the physical realm (Schepers *et al.*, 2022). Although they can also interact using conversational AI techniques, they have an even more dimension through their interaction in physical space. From a methodological perspective, there is a need to investigate further how to use advanced natural language processing techniques such as deep learning, and transformer architectures to build personalized conversation styles automatically. ~~Investigating~~Our approach focused on the application of conversational AI in customer service and did not consider research from the domain of computer science without a customer service context. However, investigating the applicability and suitability of these advanced computational methods in the customer service context could further advance research. Researchers should ~~also~~ investigate technology maturity in dealing with different contextual, ethical, and privacy challenges and design experiments to evaluate its performance with customers.

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Table I: Overview of conversational AI applications in text-based customer service

	Conversational Analytics	Conversational Coaching	Chatbots
Description of AI Application	Conversational analytics extracts data from conversations using natural language processing	Conversational coaching teaches conversation partners to use verbal and non-verbal strategies to improve communicative interactions based on conversational data with natural language processing	Chatbots conduct conversations via text automatically with their users
Role in Customer Service	Gather insights from previous and ongoing customer service conversations and feedback these to customer service agents	Recommend actions to customer service agents based on gathered insights from conversational data	Customer service chatbots replace human customer service agents and automatically respond to customer enquiries
Type of Service Encounter	AI-supported service encounter: The customer directly interacts with a human (customer service agent), who is supported by AI	AI-supported service encounter: The customer directly interacts with a human (customer service agent), who is supported by AI	AI-performed service encounter: The customer directly interacts with an AI
Customer Service Tasks	• Understand customer journey • Connect touchpoints (live chat, SMS, social media) • Enforce compliance in call centers • Root-cause analysis in conversations	• Auto-completing messages • Recommending adjusting tone or volume (in voice) • Transferring customers to other agents • Recommending discounts • Recommending appropriate pre-written responses	• Automate FAQs • Gather initial information • Track orders and deliveries • Appointment scheduling • *Other company-specific customer service tasks*
Common AI Techniques	Natural language understanding techniques • Sentiment analysis • Part-of-speech tagging • Intent detection • Summarization • Topic modeling	Natural language understanding techniques as in conversational analytics to gather insights plus • Recommender systems • Reinforcement learning	Chatbots also rely on natural language understanding and decision-making techniques but also require • Natural language generation (e.g., language models) • Dialogue state tracking
Opportunity for Relational Personalization	Particularly suited to extract knowledge about customer: • Customer journey mapping • Sentiment analysis • Emotion analysis • Customer profiling	Particularly suitable for connecting conversation styles with customer knowledge: • Recommend personalized level of conversation style (e.g., less repetitive) • Suggest use of emojis based on customer emotion • Route customers to appropriate agent based on personality	Chatbots combine the other two applications and are particularly suitable for realizing personalized conversation styles: • Generating personalized responses • Adjusting styles throughout conversations

- Suggest more appropriate (e.g., empathetic) response

Table II: Overview of analyzed articles from our systematic literature review

Authors	Journal	Customer Service Context	Relational Personalization Constructs	Theories & Concepts	Effect On	Key Findings
Adam *et al.* (2021)	Electronic Markets	Customer service scenario in which participants were instructed to inquire with a chatbot about the possibility of using their debit card overseas in the United States.	Small talk, empathy	Social response and commitment-consistency theory	User compliance	The results show customers are more likely to comply with a chatbot's request for service feedback when the chatbot has anthropomorphic qualities and maintains consistency. Furthermore, the study reveals that the effect of anthropomorphic design cues on user compliance is mediated by social presence.
Crolic *et al*. (2022)	Journal of Marketing	Customers' interactions with a customer service chatbot in an international mobile telecommunications company	Pronouns, relational cues in current interaction	Expectancy violations	Customer satisfaction	If customers enter a chatbot-led service interaction while feeling angry, the use of chatbot anthropomorphism can have a detrimental impact on their satisfaction with the service, overall evaluation of the company, and their willingness to make future purchases. However, this negative effect is not observed in customers who are not feeling angry.
Go and Sundar (2019)	Computers in Human Behavior	E-commerce site scenario about choosing a digital camera to purchase	Interactivity	Social presence theory	Humanness perceptions	The results indicate that a chatbot with low anthropomorphic visual cues can still provide a satisfactory level of personalization if it has a high level of message interactivity.
Han *et al*. (2022)	Information Systems Research	A scenario in which customers engage with a chatbot because they are missing item from a delivery in the retail industry	Empathy	Emotional contagion and expectation–disconfirmation	Service evaluations	Positive emotion expressed by an AI agent (versus a human employee) is less effective in facilitating service evaluations because of a heightened level of expectation–disconfirmation.
Haugeland *et al.,* (2022)	International Journal of Human-Computer Studies	Customer service chatbot interaction in retail banking	Small talk, free flow	N/A	User perception of anthropomorphism and hedonic quality	The study discovered that topic-led conversations can enhance both anthropomorphism and hedonic quality in chatbot interactions. However, no such effect was observed in free text interactions, possibly because chatbots lack the necessary flexibility and adaptability.

Kull *et al.* (2021)	Journal of Business Research	Text message on a smartphone from a travel agent chatbot	Empathy, relational history	Social response theory	Brand engagement	When chatbots initiate a conversation using a warm (vs. competent) message, brand engagement increases. Brand–self distance mediates this effect, such that a warm (vs. competent) initial chatbot message makes consumers feel closer to the brand.
Li and Shin (2023)	Journal of Consumer Behaviour	Imaginary scenario of a conversation with Rolex's chatbot	Empathy	Expectancy violation theory	Brand status perception, perception of the appropriateness	Luxury brands might be better off not using emoticons in chatbot communications because it dampens the brand status perception due to perceived unexpectedness, which in turn decreases the perception of the appropriateness of the interaction with chatbots. However, this negative effect of luxury brand's use of emoticons in chatbot communication only exists for traditional luxury brands, not for masstige brands.
Luo *et al.* (2022)	International Journal of Advertising	Online conversation between a customer and an online AI-powered chatbot or an online customer service employee of a fictitious clothing brand	Empathy	Schema theory	Patronage intention and consumer perception (competency and warmth)	Human employees are more competent and warmer than a chatbot. When a human employee expresses sympathy to the afflicted customer during the conversation, participants considered the employee to be more competent when he/she also exhibits contingency (vs. no contingency) during the conversation, which in turn, elicited higher patronage intentions among participants.
Naito *et al.* (2023)	International Journal of Social Robots	Customer trying to buy a new outfit for themselves by communicating with chatbot and human	Quantitative	N/A	Customer satisfaction	Research finds that while traditional customer service styles are best suited for human shopkeepers, bot shopkeepers using straight or data driven customer service styles increase customer satisfaction, make customers feel more informed, and feel more natural than when a human uses them.
Nguyen *et al.* (2022)	Information Systems Frontiers	Chatbot data from a large electric power company and their customer service	Small talk, empathy, humor	Social presence and social cues	Information match	The study found that desirable outcomes, where customers obtain the information they requested, are associated with bi-directionality, a moderate level of social presence, and selected social cues used by both the chatbot and customers.

Sands *et al.* (2021)	Journal of Service Management	Customer service encounter	Scripted	Social impact theory	Customer satisfaction and purchase intention	When human service agents use an educational script instead of chatbots, there is an increase in customer satisfaction and purchase intention. These effects are explained by emotion and rapport, as the proximity to a human service agent leads to emotional engagement and the development of rapport, which in turn influence service outcomes.
Schanke *et al.* (2021)	Information Systems Research	Used clothing buy-back process	Humor	Social presence and social information processing theory	Transaction conversion	In this retail setting, anthropomorphism is beneficial for transaction outcomes, but that it also leads to significant increases in offer sensitivity.
Shin *et al.* (2023)	International Journal of Consumer Studies	Interaction on the web site of a fictitious telecommunication company regarding an overcharged bill	Humor	Uncanny valley theory	Service satisfaction	The use of humour enhances service satisfaction when it is used by a chatbot but not when it is used by a human agent. The positive impact of chatbot humor is linked to increased perceptions of anthropomorphism and interestingness in the chatbot interactions. Both positive and negative chatbot humor can improve the interestingness of interactions, but socially appropriate humor (affiliative) is more likely to enhance service satisfaction compared to inappropriate humor (aggressive).
Song *et al.* (2022)	Journal of Retailing and Consumer Services	Purchase process through text-based interaction with customer service	Empathy	Social response theory, CASA paradigm and perceived communication quality	Consumers' adoption intention	Consumers have a higher communication capability perception for human beings than chatbots. Consumers' credibility perception of chatbots was lower at the time of purchase; however it has been noted that consumers' pre-purchase (browsing stage) trust in personalized recommendations from chatbots is higher. Strong/weak human interaction need will decrease/increase consumer perceptions of communication capability of chatbots.
Tsai *et al.* (2021)	Journal of Research in Interactive Marketing	Online interaction with a RedBull chatbot on a website with a follow-up survey	Empathy, humor, pronouns	Social presence theory	User engagement, interaction satisfaction, brand likability	High social presence communication positively impacts consumer engagement satisfaction and brand likability. This effect can be boosted by chatbots' anthropomorphic profile design

Wei *et al.* (2022)	Information Processing and Management	Online text-based customer support log from a primary health insurance provider	Standardized	N/A	N/A	Summarize and report the characteristics of different message types and compare their usage in sessions with only human, AI, or both representatives.
Weiler *et al.* (2022)	Electronic Markets	Customers' banking requests	Quantitative	Inoculation theory and the elaboration likelihood model	Users' decision to discontinue chatbot usage after a response failure	The research found that inoculation messages indicating a low performance level alleviate the negative effects of chatbots response failures on discontinuance. However, quantitative performance level information exhibits this moderating effect on users' central processing, while qualitative performance level information affected users' peripheral processing.
Whang *et al.* (2022)	Journal of Business Research	Lipstick purchase interaction with chatbot	Pronouns	Interactivity Theory	Purchase intention	The results indicate that a higher level of personalized chatbot messages enhances purchase intention through a sense of ease and understanding of the product.
Xu *et al.* (2022)	Frontiers in Psychology	Screenshots of customer-chatbot interactions	Empathy, small talk	Social cognition theory	Customer satisfaction	Two experimental studies reveal that using a social-oriented communication style boosts customer satisfaction. Warmth perception of the chatbot mediates this effect, while consumer attachment anxiety moderates these effects.

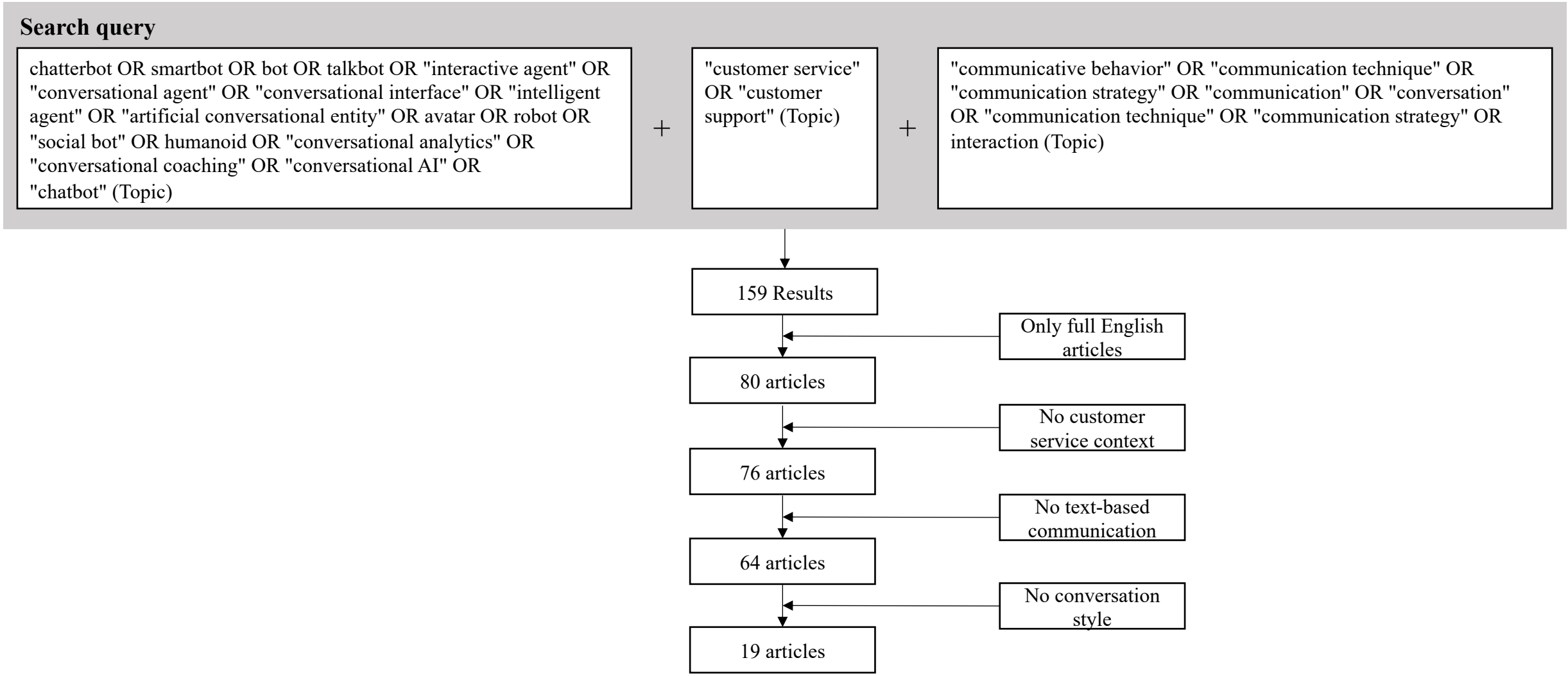
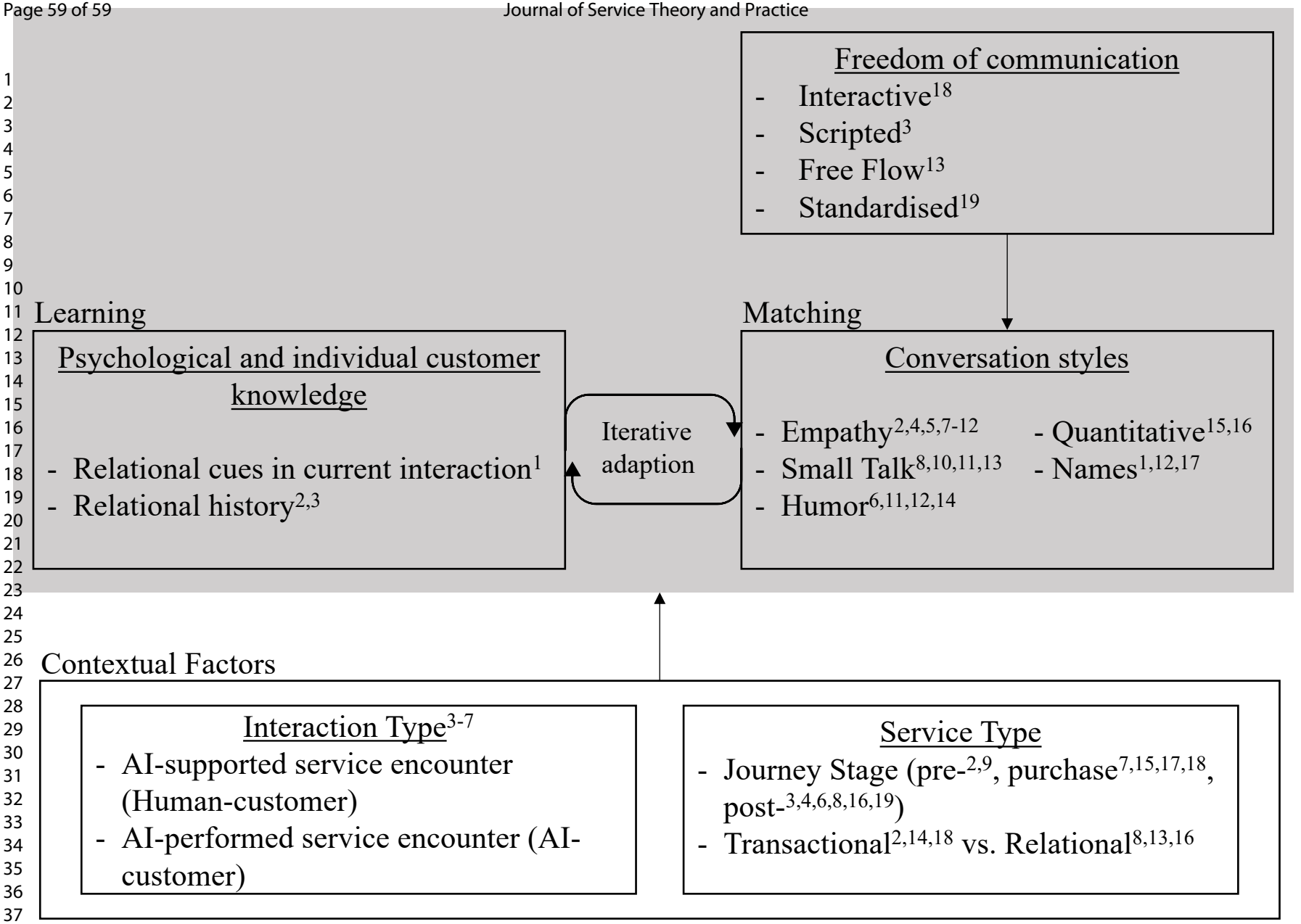


Figure 1: Systematic literature review process



1: Crolic *et al.* (2022)
2: Kull *et al.* (2021)
3: Sands *et al.* (2021)
4: Han *et al.* (2022)
5: Luo *et al.* (2022)
6: Shin *et al.* (2023)
7: Song *et al.* (2022)
8: Adam *et al.* (2021)
9: Li and Shin (2023)
10: Xu *et al.* (2022)
11: Ngyuen *et al.* (2022)
12: Tsai *et al.* (2021)
13: Haugeland *et al.* (2022)
14: Schanke *et al.* (2021)
15: Naito *et al.* (2023)
16: Weiler *et al.* (2022)
17: Whang *et al.* (2022)
18: Go and Sundar (2019)
19: Wei *et al.* (2022)

Figure 2: Conceptual framework of relational personalization in text-based customer service conversations