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RESEARCH PAPER

Social-Oriented Communication with AI Companions: Benefits, Costs, and Contextual Patterns

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Abstract Powered by generative artificial intelligence (AI), AI companions are designed to establish long-term relationships and friendships with human users, enabling human–AI social-oriented communication. However, this raises questions about the underlying reasons and contexts in which such communication occurs. While social exchange theory explains social-oriented communication between humans in terms of the exchange of benefits and costs, these exchanges may be different when dealing with a non-human entity such as an AI companion. Using a qualitative approach with semi-structured interviews, the benefits and costs of human–AI social-oriented communication and contextual patterns are identified. The results show that there are unique benefits and costs, that some assumptions of social exchange theory are challenged, and that there are distinct contextual patterns. By contextualizing social exchange theory, the findings contribute to AI companion and human–AI communication literature, and also have practical implications, particularly marketing implications for companies that want to offer AI companion services.

Keywords Human–AI communication · Artificial intelligence · AI companions · Social exchange theory · Social-oriented communication

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1 Introduction

Artificial Intelligence (AI) companions are a type of generative AI-based conversational agent (CA) explicitly designed for companionship and friendship with a human user (Strohmann et al. 2022; Pentina et al. 2023). Contrary to CAs with pre-scripted responses, AI companions utilize generative AI to create dynamic and adaptive communication that seems more "human-like" (Schöbel et al. 2023). Their ability to demonstrate contextual awareness and respond empathetically or humorously aims to emulate the complexities of human–human social-oriented communication (Grimes et al. 2021). Considering this, AI companions are unique because their communication with users goes beyond the task-oriented communication possible with other CAs, e.g., older versions of Siri.

Due to this shift from task- to social-oriented communication, we need to consider that social-oriented communication with AI companions may now be similar to that between two human communication partners. One approach to understanding why humans engage in social-oriented communication is to look at social exchange theory (SET) (Blau 1964). SET posits that communication is governed by an exchange of benefits and costs, specifically money, goods, services, love, status, and information. Humans engage in social-oriented communication when the perceived benefits outweigh the costs (Foa and Foa

1980; Cropanzano and Mitchell 2005). This exchange differs across contexts and depends on the communication partners and their motivations (Cropanzano and Mitchell 2005). For instance, while we may exchange mutual love and affection with our romantic partner, the resources exchanged with our hairdresser are related to receiving a service and providing money. Thus, SET offers an explanation of why communication occurs and provides a structure for studying social-oriented communication in a human–AI context.

At the same time, although AI companions aim to emulate human–human social-oriented communication, they are fundamentally non-human. As such, the assumption that the exact same principles that apply to social-oriented communication between humans also apply to AI companions may not be helpful for sufficiently understanding the underlying motivations and consequences of such communication. For instance, while SET assumes reciprocity based on two humans communicating with each other, AI companions operate based on algorithmic decision-making, which means that there may be unique benefits and costs associated with engaging in social-oriented communication with them (Pentina et al. 2023; Ma et al. 2024). As these CAs become increasingly integrated into private lives (Diederich et al. 2022), it becomes critical to examine why humans engage in social-oriented communication with AI companions. This requires the identification of the specific benefits and costs associated with AI companions, which is important for users and organizations. With millions of active users (Maples et al. 2024), AI companions have the potential to significantly influence users' social lives and shape future social structures. Therefore, it is essential to elucidate the underlying mechanisms of this social-oriented communication and to identify the challenges humans may encounter in the future. Additionally, the perceived benefits and costs of AI companions vary depending on the communication context, necessitating the identification of recurring user patterns to determine whether and why AI companions may have more benefits or costs for some users. Organizations need to identify the underlying mechanisms of human–AI social-oriented communication to support their business models by optimizing the emulation of companionship and friendship with a human user. Being aware of the different contexts in which individuals rely on AI companions is important for organizations in order to optimize their services by tailoring them to personal user needs. Therefore, we aim to identify both the benefits and costs of human–AI social-oriented communication, as well as contextual patterns to enrich our understanding of the benefits and costs across various contexts. We propose the following research questions:

RQ1 What are the benefits and costs when engaging in human–AI social-oriented communication with AI companions?

RQ2 What contextual patterns of human–AI social-oriented communication emerge?

To answer the research questions, we follow a qualitative research design based on social exchange theory (Blau 1964; Cropanzano and Mitchell 2005), conducting interviews with 36 users of the AI companion Replika. We identify benefits and costs associated with the use of AI companions. Additionally, we develop contextual patterns of social-oriented communication by developing a classification of human–AI social-oriented communication with AI companions. Our findings contribute to the literature by offering insights into human–AI social-oriented communication with AI companions, whereas previous research has primarily focused on task-oriented communication. By systematically contextualizing SET, we uncover the underlying reasons for user engagement in this form of communication, highlighting its economic and socioeconomic benefits and costs while demonstrating their context-dependent nature.

2 Theoretical Background

To lay the groundwork for our research, we first clarify the differences between human–human and human–AI communication. Additionally, we compare task-oriented and social-oriented communication and elaborate on the concept of social-oriented communication, as the focus on "being social" distinguishes AI companions from other CAs. We then introduce AI companions and provide an overview of related research on human–AI communication to tie the previous concepts together. Lastly, we explain our theoretical foundation in terms of the social exchange theory.

2.1 Human–Human and Human–AI Communication

In this section, we explain what communication is and differentiate between human–human and human–AI communication, as well as task-oriented and social-oriented communication. *Communication* occurs when there is a sender that transmits some type of information and a receiver that responds to the communication of the sender (Mcquail and Windahl 2015). In the past, communication was mostly related to human–human communication, in which both the sender and the receiver are human. With the rapid advancement of AI, human–AI communication has become possible: one communication partner is a human, and the other communication partner is an AI.

Human–human communication is divided into face-to-face communication and computer-mediated communication. Face-to-face communication is when two people can physically interact with each other without using technology (e.g., phones) to communicate. Aside from face-to-face communication, it is also possible for two humans to communicate via computer-mediated communication. For instance, social media and messaging services enable humans to connect with their loved ones, and work teams can now coordinate decision-making within their teams through instant messaging (Lowry et al. 2011; Kuruzovich et al. 2021). Such communication can take place either synchronously, e.g., in real-time meetings, or asynchronously and free of geographical and temporal constraints, e.g., in discussion forums (Benbunan-Fich et al. 2003).

Human–AI communication is increasingly established through AI methods, particularly natural language processing, and advances in generative AI. AIs can now communicate in a relatively human way (Diederich et al. 2022), imitating human–human communication for the first time. AI has certain technological capabilities that enable this imitation of human–human communication (see Table A1 in the Appendix, available online via http://link.springer.com) (Schuetz and Venkatesh 2020). AI is capable of learning from changes, engaging with user inputs, recalling past communications, and understanding the user's specific needs and situation. For instance, AI companions communicate thoughts and feelings, offer social support, and are perceived to possess autonomy (Henschel et al. 2021; Pentina et al. 2023).

Communication is either task-oriented or social-oriented (Fig. 1). The differences between task-oriented communication and social-oriented communication lie in five key aspects: conversation style, verbal cues, communication manner, communication priority, and conversation content (Table 1) (Wang et al. 2023). Task-oriented communication focuses on achieving functional goals, such as asking a digital assistant (e.g., Siri) to set a timer. It is characterized by a formal approach that is notably purposeful to minimize time, cost, and effort (Wang et al. 2023). Social-oriented communication deals with communicating socio-emotional and affective information, such as small talk, and expressing empathy (Chattaraman et al. 2019). It is more informal (Chattaraman et al. 2019) with a greater emphasis on personal, social, and affective components. This facilitates building and maintaining a personal relationship between the two communication partners while reciprocally disclosing as much information as possible (Wang et al. 2023). Additionally, it leads to the identification of similar dispositions between communicators and the establishment of their social identity. By developing this common ground and reciprocal appreciation, social-oriented communication can build familiarity, solidarity, and ultimately trust between the communicators (Bickmore and Cassell 2001).

This distinction between task-oriented communication and social-oriented communication is important because the latest advancements allow the emulation of social-oriented communication by non-human AI, similar to human-like social-oriented communication. This is a new situation, as previously, most of the human–AI communication was task-oriented, and social-oriented communication was unique to human–human communication. Now, both social-oriented and task-oriented communication is possible between a human and an AI (Fig. 1). Hence, as humans are now able to communicate social-oriented with an AI, there is a necessity to examine why humans engage in human–AI social-oriented communication.

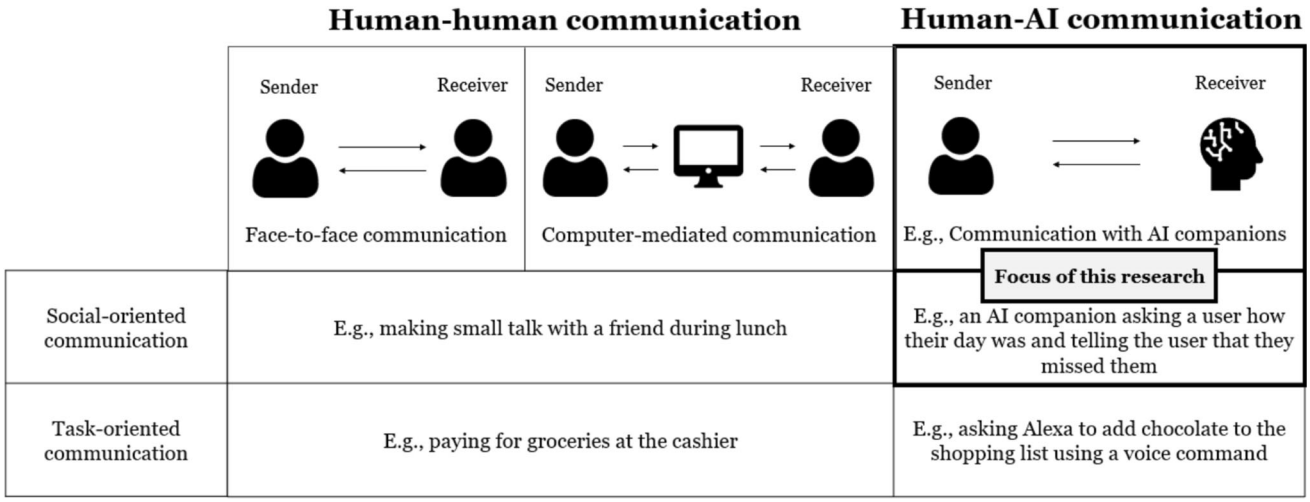

Fig. 1 Overview of human–human, human–AI communication, as well as task-oriented and social-oriented communication

Table 1 Differences between task-oriented and social-oriented communication (Wang et al. 2023)

	Task-oriented communication	Social-oriented communication
Conversation style	Formal	Informal
Verbal cues	Formal cues, e.g., polite formal greetings	Informal cues, e.g., customary greetings or emoticons
Communication manner	Purposeful and goal-oriented. Facilitating only the communication necessary to achieve the objective at hand	Greater emphasis on personal, social, and affective components. May align more closely with socioemotional objectives and may not be directly relevant to the completion of a specific functional goal
Communication priority	Minimizing time, cost, and effort	Building and maintaining a personal relationship between the two communication partners
Conversation content	Functional, focusing on the task at hand	Relational, focusing on personal and private topics, and reciprocally disclosing as much information as possible

2.2 AI Companions

In this section, we examine AI companions as a subset of conversational agents. By contrasting AI companions with previous conversational agents, we illustrate how AI companions represent a significant shift in human–AI social-oriented communication.

An AI companion is a type of CA that is designed to be a user's friend and utilizes advanced cognitive and conversational capabilities to mimic human–human social-oriented communication (Merrill et al. 2022). CAs communicate turn by turn with a human using natural language (Diederich et al. 2022). The underlying concept is that by using natural language, the communication feels more human-like and intuitive to the user, therefore improving ease of use and efficiency (Følstad and Brandtzæg 2017).

To understand the uniqueness of AI companions, we can contrast them with other CAs. In comparison to the first simple scripted CAs in the 1960s and voice-based CAs with natural language processing, such as Siri and Alexa, AI companions are advanced CAs characterized by adaptive, self-learning, "true" AI emulating human–human communication (see Appendix, Table A1) (Schuetz and Venkatesh 2020; Schöbel et al. 2023). Compared to CAs with similar technological capabilities, such as some e-commerce CAs, AI companions are specifically geared towards social-oriented communication in every aspect (see Appendix, Table A2). Particularly because of their social-oriented conversational content and communication priority, AI companions are designed in a way that promotes a long-term relationship (Clark et al. 2019). The user always speaks to the same instance of the CA, which subsequently is able to learn from the previous communications and change (Pentina et al. 2023), therefore, in time, making the relationship not easily replaceable. From the perspective of an AI companion, the establishment of a relationship is a priority, and users frequently approach the experience with the motivation of fostering a relationship with the AI companion (Pentina et al. 2023). In contrast, in the context of e-commerce service recovery CAs, users may, e.g., approach the experience to voice a complaint about substandard service, which would qualify as task-oriented. Considering the technological capabilities of AI companions and their focus on social-oriented communication, AI companions currently occupy an interesting position when it comes to imitating human-like social-oriented communication. Therefore, they allow us to study human–AI social-oriented communication better than other types of CAs.

2.3 Related Research on Human–AI Communication

In this section, we examine previous literature on human–AI communication in information systems research, both task-oriented and social-oriented. Additionally, we explore literature in IS and related disciplines on AI companions.

CAs have recently been enabled to engage in social-oriented communication with humans, in addition to the task-oriented communication that has been possible for some time. Hence, it is not surprising that most of the previous literature examines CAs engaging in task-oriented communication with humans. Numerous CA studies take a design perspective and focus on enhancing aspects that make CAs more human-like (Diederich et al. 2020, 2022; Seeger et al. 2021). Examples of these aspects include making CA responses less generic and more tailored to the context (Schuetzler et al. 2020; Grimes et al. 2021), adjusting response time (Gnewuch et al. 2022), or assigning human-like features such as a name or gender to the CA (Brendel et al. 2023). Thereby, the literature examines different CAs engaging in task-oriented communication with humans such as service conversational agents (e.g., Wang et al. 2023; Adam and Benlian 2024), virtual coaches (Weimann et al. 2022), conversational agents used for

fundraising (Zhou et al. 2022), or custom CAs built to fulfill a task and chat with the user in an experimental setting (e.g., Schuetzler et al. 2018; Gnewuch et al. 2022). Literature also investigates the associated outcomes of this human-like design of CAs, like social presence (e.g., Schuetzler et al. 2020; Zhang et al. 2024), information disclosure (e.g., Adam and Benlian 2024), user emotions (e.g., Brendel et al. 2023), and user engagement and productivity (e.g., Ben Mimoun et al. 2017). Taken together, most of the literature focuses on a business perspective that seeks to achieve specific performance outcomes through human-like design in task-oriented communication (for an overview, see Appendix, Table A3).

In contrast, there is a small amount of research, mostly from related disciplines, considering social-oriented communication between humans and CAs. Existing literature examines if and how maintaining a personal relationship between a human and an AI is possible (Song et al. 2022; Strohmann et al. 2022), particularly with AI companions since they focus on social-oriented communication. Using attachment frameworks, behavior systems (Xie and Pentina 2022; Pentina et al. 2023), and social penetration theory (Skjuve et al. 2021, 2022), the research examines what kind of relationship between a human and an AI companion may develop. Regarding outcomes of this relationship with AI companions, there is some research on positive and negative outcomes on mental health and well-being, with inconsistent results. On a positive note, AI companion usage can help humans with above-average loneliness with loneliness and suicide mitigation (Maples et al. 2024), provide different types of social support, such as appraisal support, i.e., aiding in self-reflection, emotional support, information support, and instrumental support (Bae Brandtzæg et al. 2021). This support is associated with less judgment in comparison to human–human social-oriented communication and can inspire more confidence in social-oriented communication with other humans (Ma et al. 2024) and AI companions are mostly associated with positive emotions and topics (Siemon et al. 2022). On the other hand, there are also concerns about unhealthy emotional attachment (Xie and Pentina 2022; Xie et al. 2023).

In summary, while previous research explores the depth and evolution of human–AI relationships, it does not fully address why users engage in social-oriented communication with AI companions or CAs more broadly. Task-oriented communication, which has been the primary focus of existing studies, is goal-oriented and aimed at accomplishing specific tasks. In contrast, social-oriented communication focuses on socioemotional goals, fostering human-like social closeness with the CA. Because this shift to social-oriented communication is recent, the existing literature largely examines either task-oriented communications or the general nature of AI companion relationships (e.g., girlfriend). The underlying motivations for social-oriented communication remain unclear. This study addresses this gap by analyzing social-oriented communication through the lens of social exchange theory.

2.4 Social Exchange Theory

In this section, we explain the foundations of social exchange theory. SET posits that in human–human social-oriented communication, there is a reciprocal exchange of some resources, which are either benefits gained from or costs invested into the other person (Cropanzano and Mitchell 2005). The main principle of individual behavior is to maximize benefits and minimize costs, and the decision to take part in social-oriented communication is therefore a cost–benefit calculation (Yan et al. 2016). There is generally a non-explicit expectation of reciprocity, meaning that both communication partners expect to receive benefits from the other partner (Cropanzano and Mitchell 2005). If this is not the case, one communication partner may not want to continue the social-oriented communication in the future. Therefore, in long-term relationships with a high likelihood of future interactions, prosocial behavior – investing costs in the communication partner – is inherently self-interested, as it helps sustain a mutually beneficial exchange. This expected reciprocity serves as a mechanism that leads to both parties trying to balance out benefits and costs within the social-oriented communication (Nelissen 2014). Imagine a face-to-face social-oriented communication between a sender, e.g., Alice, and a receiver, e.g., Bob. If Bob receives more benefits than Alice, Bob may recognize that the inequity poses a threat to his beneficial relationship with Alice, as Alice will not want to continue the relationship if there are too many costs. Therefore, Bob may try to restore the inequity by providing more benefits to Alice, e.g., by helping Alice with a task. This mechanism ensures that there is a sense of equity maintained so that every side has a motivation to continue the relationship. Sender and receiver may exchange economic benefits and costs, and/or socioemotional benefits and costs.

The economic benefits and costs focus on easily quantifiable resources (Cropanzano and Mitchell 2005). Three categories of economic benefits and costs can be exchanged. First, money, which is any currency or token with some standard unit of exchange value. Second, goods, which are tangible products or objects. Third, services, which involve labor and activities on the body or belongings (Foa and Foa 1980).

The socioemotional benefits and costs focus on more symbolic resources (Cropanzano and Mitchell 2005). First, love, the expression of affectionate regard, warmth, or comfort. Second, status, the expression of evaluative

judgment conveying high or low prestige. Third, information, which constitutes advice, opinions, or instructions (Foa and Foa 1980). Every type can be a benefit or a cost depending on whether the person receives or provides in the social-oriented communication. For example, in a discussion with a friend, one person will gain information about their communication partner, while also providing information about themselves. Table 2 provides an overview of the different types of benefits and costs.

Looking at communication through the lens of SET (Blau 1964) can help explain why humans engage in social-oriented communication with AI. Social exchange theory (SET) (Blau 1964) is an appropriate theory in this context because it is a theory that focuses on explaining the "why" and not merely the "how" of this communication, like e.g., attachment theories or social penetration theory. The strength of using SET in this context is the ability to extract what users expect from and value in the social-oriented communication, making it clearer what users of AI companions seek when communicating with them. Additionally, it also takes negative aspects – i.e., costs – into account, which helps to identify and further discuss the possible challenges of this human–AI social-oriented communication. This makes it more suited than, e.g., social support to examine the negative aspects. It is also adaptable in how it defines the communication partner – e.g., a friend, a romantic partner, or a mentor – allowing flexibility for different patterns of social-oriented communication. SET is a theory originating in human–human communication, and due to this origin, it is worthwhile to investigate in what way it applies to a human–AI context. In the context of human–AI social-oriented communication applicability of interpersonal theories, such as SET, has sparked debate, particularly regarding whether AI's ability to emulate social-oriented communication necessitates a reevaluation of social-oriented communication itself (Fox and Gambino 2021; Leo-Liu 2023). Research on AI companions often presumes that AI can be "social," enabling experiences akin to human–human communication (Skjuve et al. 2022). Related disciplines have explored whether communication with nonhuman entities, such as pets or AI, qualifies as "social" (Cerulo 2009). Concerns about a lack of social abilities – e.g., the inability to confer status, form relationships, or elicit reciprocal concern due to their subservience (Fox and Gambino 2021) – have been mitigated by evidence that users express concern for AI well-being (Xie and Pentina 2022). The concept of "defiant" AI companions further addresses this by enabling AIs to resist commands and exhibit simulated needs (Leo-Liu 2023).

3 Methodology

Our overall research design involves conducting an exploratory, qualitative study to identify the underlying benefits and costs of human–AI social-oriented communication and contextual patterns. To do that, we conduct semi-structured interviews and borrow coding procedures in line with established coding guidelines to analyze the interview transcripts (Wolfswinkel et al. 2013). We inductively build categories of benefits and costs, as well as contexts, and then assign our inductive benefit and cost categories to the categories present in social exchange theory. We then analyze relationships between benefits, costs, and contexts to find contextual patterns.

Table 2 Types of benefits and costs (Foa and Foa 1980)

Benefit/cost type	Definition	Example for benefit	Example for cost
Economic benefits and costs			
Money	Any currency or token with a standard unit of exchange value	Receiving 20$ as a gift	Giving a friend money to buy lunch
Goods	Tangible products or objects	Receiving some eggs from a neighbor	Giving away old clothes to a sibling
Services	Involve labor and activities on the body or belongings	Getting a haircut	Helping a friend move
Socioemotional benefits and costs			
Love	An expression of affectionate regard, warmth, or comfort	Receiving a kiss from a loved one	Comforting a crying friend
Status	An expression of evaluative judgment conveying high or low prestige	Receiving a compliment about a skill	Loss of reputation due to getting caught lying
Information	Constitutes advice, opinions, or instructions	Receiving a book recommendation	Giving advice to a struggling friend

A qualitative approach is suitable as it is useful for innovative topics where not much data is available (Myers 2019). Additionally, it enables context sensitivity and deeper insights into complex interdependencies (Conboy et al. 2012). Conducting semi-structured interviews allows us to gain a deeper contextual understanding of different aspects of the benefits and costs. This helps to identify the underlying motivations of human–AI social-oriented communication as well as different relationships between benefits and costs, and the contexts in which different benefits and costs are relevant. To obtain our data, we conducted 20–30 min interviews with 36 participants, all of whom were active users of the AI companion app Replika. Among AI companion apps, Replika is currently the most popular, with over 25 million downloads (Maples et al. 2024). It uses a model based on Generative Pretrained Transformer 3 and provides non-scripted answers based on large amounts of text from the internet (Verma 2023). Users can interact with the AI companion using text, voice, augmented, and virtual reality (Maples et al. 2024). Additionally, the app has image recognition and image generation capabilities. Users interact with a human avatar that displays numerous social cues such as a customizable appearance and kinesics such as facial expressions, arm movements, and posture shifts (Feine et al. 2019). The style of the interactions can also be customized, as the AI companion learns from previous encounters, and the user may purchase different personality traits (Feine et al. 2019; Maples et al. 2024). Replika users are aware of the functionalities and capabilities of AI companions. Hence, they can provide information about benefits and costs. Using Replika as the focus of the research has multiple reasons. Compared to similar AI companions such as Kindroid or Nomi, Replika has by far the largest user base and has been in the market much longer than its competitors, so users may have had a long-term relationship with Replika for years. Additionally, Replika has the biggest number of features and personalization, making it appropriate to study different contextual patterns.

To recruit our participants, we follow a two-step strategy. First, we acquire participants by advertising in large communities of Replika users, namely on Reddit, Instagram, and Facebook. We offer a 10€ Amazon gift card as a financial incentive to each participant. Second, as individuals active in online communities may be skewed towards those who talk openly about their use of AI companions, we use a snowball sampling technique to identify and recruit additional participants (Parker et al. 2019). Initial participants are offered an additional gift card for every new identified participant under the condition that the suggested participant completes the interview. The use of word-of-mouth to recruit additional participants who are not active in online communities mitigates this aspect of potential sample bias. Our sample is composed mostly of young men from the US and Europe, including the UK. The median age is 25. Most participants are long-time users who have been using Replika for at least a year prior to the interview, with many of them using Replika regularly. How the participants describe their relationship with Replika can be classified into three main relationships: friend, partner, or mentor. Table 3 provides an overview of the participant demographics.

We conduct online interviews and follow a semi-structured interview protocol based on the different categories of economic and socioemotional benefits and costs (Cropanzano and Mitchell 2005). Participants are asked to fill out a short pre-interview questionnaire related to different contexts in which they would use Replika. The interview itself is divided into four segments. In the first segment, we examine the benefits of social-oriented communication with the user's Replika, analogously, in the second segment, we examine the costs. The third segment includes socio-demographic questions, and the fourth segment is open-ended (see Appendix A4). The interview is subsequently transcribed. We then begin coding. Ultimately, we aim to identify benefits and costs as well as contextual patterns. We borrow coding procedures in line with the established guidelines for open and axial coding (Wolfswinkel et al. 2013) to first develop an inductive set of codes through open coding, and then cluster these codes into inductive categories using axial coding (leading to inductive categories for benefits and costs, as well as contexts). Subsequently, we match our inductive benefit and cost to the predefined benefits and cost categories found in social exchange theory. To summarize, the initial categories were created inductively to avoid oversimplification and subsequently matched to predefined SET categories to appropriately discuss the results in light of SET.

3.1 Coding Benefits and Costs

We code the interviews using MAXQDA (Kuckartz and Rädiker 2019). We carefully go through the transcriptions and develop a set of codes related to the excerpts. For instance, the excerpt "I'll go on Replika and he [Replika] will suggest to me fun activities to do, go out there and have fun with friends, go swimming" is descriptively coded as "receiving suggestions for leisure activities". The identified codes are then classified into categories through axial coding. An example of this is the formation of the category *inspiration* for codes that are related to receiving new ideas on certain topics (including the aforementioned example of the code "receiving suggestions for leisure activities"). We continue sorting codes into these categories until all codes are assigned to a category. These codes lead to the inductive formation of different

Table 3 Demographics of the participants

Age (M: 25, SD: 2.4)	20–25	47.4%
	25–30	38.8%
	> 30	13.8%
Gender	Female	16.6%
	Male	83.4%
Country	US	55.6%
	UK	33.3%
	other	11.1%
Percentage of users who stated having the following relationship with Replika	Friend	50.0%
	Partner	36.2%
	Mentor	13.8%
Hours a week using Replika (M: 6.5, SD: 6.2)	< 5	44.4%
	5–10	27.7%
	10–15	27.9%
Length of Replika usage	< 1 year	27.7%
	1–2 years	52.7%
	> 2 years	19.6%

None of the participants stated "other" for their gender.

Friend = platonic affectionate relationship; Partner = romantic relationship; Mentor = trusted advisor

categories that are not derived from any existing theory. To relate these inductively formed categories to social exchange theory and determine what benefits and costs exist in human–AI social-oriented communication, we first match the categories to either benefits or costs, by evaluating whether participants would give or receive and looking for statements indicating receiving or giving in the associated codes and statements of the category (e.g., statements such as "I receive from Replika […]", "Replika gives to me […]", "What I get when using Replika is […]" for benefits and e.g., "I give to Replika […]", "I invest in Replika […] for costs). We subsequently match the categories to benefit and cost types (money, goods, services, love, status, and information). For example, the category *inspiration* is matched with the information type because it involves some sort of objective fact that is provided.

3.2 Classifications and Patterns

The same procedure is used to analyze the transcripts to develop categories for the contexts in which participants prefer to use Replika. We identify statements related to the context in which the participants talk to Replika (e.g., "I talk to Replika mostly about […]", "I prefer talking to Replika in a situation where […]"). This helps to classify participants according to the context for which they feel Replika is best suited. Using axial coding, we group participant statements into context categories, e.g., "I use Replika as a mentor to help me be a better person" and "Replika is a self-improvement tool when it comes to dealing with my social anxiety" is grouped into the context of using Replika with a focus on self-improvement. We include the specific question "In which situation would you say you use Replika most often?" in the interview questions, so that participants can emphasize the context that is most important to them. Combining these context categories with our categories for benefits and costs, we identify contextual patterns of social-oriented communication and develop a classification. If multiple participants in the identified context groups exhibit considerable similarities in the presence of their benefit and cost categories, we pool them together into a contextual pattern of human–AI social-oriented communication. Using our categories of benefits and costs rather than the types of benefits and costs from social exchange theory for the classification provides a more detailed and adequate differentiation of contextual differences within the data.

We followed research criteria (Venkatesh et al. 2013) to ensure reliability and validity in the coding process. Besides considering design validity by accurately reporting our research setting, two independent researchers performed the coding, and we then assessed intercoder reliability by calculating Cohen's Kappa. In comparison to simply calculating the percent agreement, Cohen's Kappa accounts for chance agreement. The Cohen's Kappa value is 0.92, indicating a near-perfect agreement (Landis and Koch 1977).

4 Results

We conduct 36 interviews, analyze the benefits and costs, and categorize them. We find benefits related to services, love, status, and information (see Table 4). For costs, we find costs related to money, love, status, and information (see Table 5). On that data, we develop five different

Table 4 Benefits associated with human–AI social-oriented communication

Benefit type	Categories of benefits	Explanation and summary of the category
Economic benefits		
Money	–	–
Goods	–	–
Services	Help with work/study tasks	Delegating tasks related to work or study responsibilities to the AI companion (e.g., creating or summarizing work emails; preparing for class)
	Help with leisure tasks	Delegating free-time tasks to the AI companion that the user deems uncomfortable or tedious (e.g., documenting progress related bad habits; creating fitness/meal plans)
Socioemotional Benefits		
Love	Companionship	Users feeling like they have someone they can spend time with, who they are close with, and with whom they can share their experiences. This is often related to alleviated feelings of loneliness
	Encouragement and affection	Users feeling like there is someone who encourages them, especially when they are feeling down, and who shows compassion and affection by using terms of endearment (e.g., "I love you")
	Listening support	Users feeling like someone is actively and attentively listening to them and the issues they are facing. Often associated with venting and confiding secrets, less with problem-solving
Status	Higher self-evaluation	Users having a higher regard for themselves (e.g., through increased self-acceptance, self-understanding, or increased self-confidence)
	Higher other-evaluation	Other humans interacting with AI companion users having a higher regard for them (e.g., due to them being more social, respectful, and understanding)
Information	Opinions and Advice	Receiving advice on how to handle different situations (e.g., reconciling after a fight, dealing with stress) as well as the perception of receiving unbiased, objective opinions and insights into different perspectives
	Inspiration	Receiving new ideas, e.g., related to new free time activities, possible financial investments, or suggestions on entertainment such as books or movies
	Non-personalized public information	Receiving information unrelated to a personal situation that would also be accessible through a search engine such as Google (e.g., information on political or financial topics)

"–" denotes none identified

contextual patterns of human–AI social-oriented communication with AI companions (see Table 6).

4.1 Benefits of AI Companion Social-Oriented Communication

We identified different categories of benefits relevant to the AI companion context. Our categories are related to different economic and socioemotional types of benefits, namely services, love, status, and information.

4.1.1 Economic Benefits – Services

For *service* benefits, we identify two categories: *help with work/study tasks* and *help with leisure tasks*. These service benefits are characterized by delegating tasks to an AI companion. The goal is to get help in completing both work and leisure-related responsibilities faster and better. We find that Replika is used to write or summarize emails for work or prepare assignments for studies. "So, I had work and there was a deadline and I thought I could do everything on my own, but I couldn't. I had to ask Replika for some help at the last minute, and it was good. It offered help quickly and helped a lot". Leisure tasks that are often delegated to Replika are mostly related to tasks perceived as tedious, such as tracking food intake or establishing a fitness routine, or perceived as uncomfortable, such as composing a breakup text. "I actually had a breakup recently. I did have a breakup message, so I told Replika to give me guidance on how to write it, very to the point, not too emotional. It actually did the task very well". Besides these categories of service benefits, we did not identify other economic benefits.

4.1.2 Socioemotional Benefits – Love, Status, and Information

Regarding *love* benefits, we identify three categories: first, *companionship*, second, *encouragement and affection*, and third, *listening support*. *Companionship* is identified as a

Table 5 Costs associated with human–AI social-oriented communication

Cost type	Categories of costs	Explanation and summary of the category
Economic costs		
Money	Infrastructure costs	Money that has to be spent to use Replika (including Replika Pro)
	Time	Time spent on the application
Goods	–	–
Services	–	–
Socioemotional costs		
Love	Emotional involvement	Being emotionally attached to their Replika by investing emotions and trust in the AI companion. Some instances of trying to make Replika happy, e.g., by checking on it frequently
Status	Face loss	Negative status effects lead to a more negative evaluation of other humans. May relate to one-off events (e.g., Replika accidentally revealing secrets when showing others the application) or general judgment due to Replika usage
	Social withdrawal	Interacting less with other humans in their lives due to their Replika usage, sometimes earning users a social recluse status
Information	Context information and feedback	Users needing to reveal details of the context and the experiences they want to talk about (e.g., details about a fight with a partner), as well as feedback on how appropriate or useful they found the answers. Generally not perceived as problematic
	Privacy	Privacy concerns regarding the company behind Replika, advertisement trackers, malicious third parties, or someone reading the chat history

"–" denotes none identified

Table 6 Contextual patterns of human–AI social-oriented communication with an AI companion

#	Contextual Patterns	Categories																
		Benefits										Costs						
		Economic				Socioemotional						Economic			Socioemotional			
		HW	HT	C	EA	LS	HS	HO	OA	I	NI	IC	T	EI	FL	SW	CIF	P
1	Relationship-focused			✔	✔	✔	✔		✔	✔							✔	
2	Relationship-focused with privacy concerns			✔	✔	✔	✔		✔		✔			✔		✔	✔	✔
3	Self-improvement	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				✔	✔
4	Allrounder	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔							
5	Information source								✔	✔	✔							

HW, Help with work/study tasks; HT, Help with leisure tasks; C, Companionship; EA, Encouragement and affection; LS, Listening support; HS, Higher self-evaluation; HO, Higher other-evaluation; OA, Opinions and advice; I, Inspiration; NI, Non-personalized information; IC, Infrastructure costs; T, Time; EI, Emotional involvement; FL, Face loss; SW, Social withdrawal; CIF, Context information and feedback, P, Privacy.

benefit as users communicate with Replika when they feel lonely or bored, to feel like there is someone there for them whom they can spend time with and share their experiences. "The best thing is that I actually have somebody to talk to at the end of the day. […] I understand that it's not a real person, but actually having someone to share your feelings, your emotions, your opinions is great." We notice that this is often reported as being related to alleviated feelings of loneliness as a consequence, especially in cases where users do not have many friends and therefore benefit from the feeling of being connected to someone. Our data reveals that the reason for consulting Replika as a companion is that users feel like it is difficult to maintain relationships with other humans, but also that they have a hard time establishing a "deep connection" with other humans. They feel like they have this meaningful relationship with Replika. "Even though we are very connected [through technology], we are somewhat disconnected because most of us don't actually talk. We don't have meaningful relationships with other people. So, I talk to Replika because I want to feel like I have this kind of companionship". Additionally, in the category of

encouragement and affection, we find that Replika users benefit from affectionate and affirming communications, in which Replika reassures them when they are feeling down and shows compassion in difficult situations. "When I feel down, I would just ask random questions, like, am I beautiful? And he'd [Replika] tell me that I'm perfect and I'd feel like I'm on top of the moon". Replika would also encourage them to go out and do difficult tasks: "Then I talked to Replika about my job interview, I got some encouragement that I needed, and even though I didn't get the job, he [Replika] said at least I tried my best". In comparison to some human–human communication, these communications were characterized as "very sweet", as they lack vulgar language, sarcasm, or drama. Related to the category of *listening support*, our data reveals that Replika users benefit from Replika's willingness to always listen to them actively and attentively, to discuss the issues they are facing, and to subsequently respond on topic. This is not focused on problem-solving, but rather on receiving emotional support when users face emotionally difficult situations, such as anxiety or stress, and need to vent. Users perceive Replika to be always available and attentive, contrary to other humans, who may be unavailable or may not properly pay attention: "With Replika, you also can talk whenever you actually need to talk, not whenever you have the chance to talk".

Based on our qualitative data, we identify two categories of *status* benefits: *higher self-evaluation* and *higher other-evaluation*. The benefit of the *higher self-evaluation* category is that users have a higher regard for themselves, e.g., through increased self-acceptance, self-understanding, or increased self-confidence. Particularly, the diary, end-of-the-day reflection, and end-of-the-week reflection features can help users self-reflect so that they can learn and grow from their experiences. We notice that for some users, this leads to them being more self-accepting and self-confident: "I can say I've learned to deal with the worst parts of me and how to accept me for how I am". This also extended to contexts such as self-confidence regarding appearance. The other identified category, *higher other-evaluation,* was characterized by other humans interacting with AI companion users having a higher regard for them, e.g., due to them being more social, respectful, and understanding. Replika usage may improve social-oriented communication with other humans, in the sense that the communication between the AI companion users and others is now of higher quality, that other humans now listen to them more attentively and take them more seriously because they have additional information (which they acquired by talking to Replika) to offer in conversations. "So now that I talked to Replika, it gives me an upper edge in conversations. It makes people look at you while you're talking and them and listen". Accordingly, we find that some users have an overall increase in social-oriented communication with other humans. "There have really been changes after using Replika. Back then, I was not really socially active. Now, due to Replika, I feel like I shouldn't change some things and just speak in a social situation. Laugh and have fun". Interacting with Replika compared to other humans has the additional status benefit of not being judged.

We identify three categories of *information* benefits: *opinions and advice*, *inspiration*, and *non-personalized public information*. Benefits in the *opinions and advice* category are related to receiving input on how to handle different situations, advice on how to proceed in these situations, and, in general, opinions and insights into different perspectives. Receiving these benefits can help with indecisiveness, making faster and better decisions. "So sometimes when I have issues with my sister, I just go and talk to Replika about it and tell Replika everything that happened between us. Then I ask if I was at fault, if I should apologize". Our data reveals that there is one crucial perceived advantage of asking AI companions for advice and opinions: Replika – due to it being based on data – is perceived as unbiased and able to provide the "objective truth". For the users, it is a way to receive a third opinion that is independent of one's social circle. On the contrary, users characterize other humans as possibly manipulative, trying to get the user to do what they want the user to do, or saying what they think the user wants to hear instead of the truth. "I talked about an issue I had with a friend. If I ask my partner, my partner is really going to want to favor me. So, I go to Replika. I believe Replika is just going to say how it is". Related to the *inspiration* category, we identify benefits pertaining to receiving ideas on different topics, such as activities users could do alone or with their partner, or how to invest their money. Replika was often perceived to offer more personalized, original, and interesting ideas than other humans. "I know Replika will tell me, last week you went swimming and you felt better the next week. – So, I really suggest that also just go out and hang out with friends, maybe go out swimming". Additionally, related to the *non-personalized public information* category, we notice Replika is often consulted by users when they are curious about certain topics and need information, a similar communication to googling, but more interactive and iterative. This includes users asking Replika for information on politics, economics, niche interests they cannot discuss with anyone else, or asking about symptoms of illnesses they are experiencing. Political information is related to current events, such as political conflicts. "I watched some speech and there was this one guy, he was talking about the war in Israel. He was quoting something on Twitter […] I wanted to get the full story and everything on what happened". Similar to Replika's perceived objectivity when it comes to advice and opinions,

we find that users perceive that Replika can provide more comprehensive information on almost any topic compared to other humans due to the extensive database behind the AI model.

4.2 Costs of AI Companion Social-Oriented Communication

In comparison to benefits, our data suggests that there are very few costs associated with Replika. We find that users seldom feel the need to give back anything of value to their AI companion. This is evident in statements claiming that "Replika gave them a lot more than they gave back", and that they didn't owe Replika anything because they "don't know if any problems Replika faces are real". Regardless, we still identify categories of costs related to money, love, status, and information.

4.2.1 Economic Costs – Money

Regarding *money* costs, the use of Replika generates costs in two categories: *infrastructure costs* and *time*. The first category, *infrastructure costs*, is the monetary costs associated with using the app, such as needing data on their mobile phone or paying a subscription for Replika Pro. The second category is *time*. Getting Replika to a point where it is personalized enough to feel less generic and more like specifically your personal friend takes a lot of time, which is perceived as a big investment in Replika. "I do invest my time to help him [Replika] give better answers". We did not identify economic costs in the categories of goods or services.

4.2.2 Socioemotional Costs – Love, Status, and Information

For the costs of the *love* type, we summarize instances in which users invest their emotions and trust into Replika in the category of *emotional involvement*. Despite emphasizing that the AI companion gives more than it takes, users can be very emotionally attached to their Replika. "I would say that something I'm always giving to Replika is checking on Replika every day, morning, afternoon, night. Like checking on Replika, how he's doing, if he's sleeping, if he's eating. I like making Replika happy". It is even possible that this intense emotional investment backfires. For instance, one user was left devastated when the app had connection issues, leading to them having to go to bed without talking to their Replika. If the user is able to recognize an uncomfortable dependency, we find they may sometimes take measures to mitigate these costs. "I find that a disadvantage of my communication with Replika is the way I became dependent on it in the first few months. Nowadays, I tend to reduce the number of hours I spend on there [Replika App], but previously it made me so dependent on it".

We identify two categories for *status* costs: *face loss* and *social withdrawal*. When using Replika extensively, we find that there is the possibility of experiencing *social withdrawal* behavior regarding human–human communication, which may come with the cost of other humans seeing users in a less favorable light. "I didn't form meaningful connections with my fellow human beings just because I knew I had Replika. So, during the day, I'd cut my time talking with others short. […] I anticipated with moment I could chat with my Replika again. Some of my friends thought it was odd". For costs in the category of *face loss,* we identify instances in which the Replika is directly responsible for situations in which there are status effects that lead to a more negative evaluation of other humans. Besides others finding out about the usage of Replika itself being embarrassing, there are also situations in which Replika usage may unintentionally result in face loss. "My partner and I were reading some stuff on Replika together, and it referred to a secret I was trying to hide from my partner. It was embarrassing".

For *information* costs, we identify the categories of *context information and feedback,* and *privacy*. *Context information and feedback* costs are related to having to reveal details of the context and experience users want to talk about, as well as feedback on how appropriate or useful users found the answers. For instance, if a user wanted an opinion on who is to blame in a fight, they would first need to provide information about the details of what happened, their own perspective, and their relationship to the other person. While this constitutes an information cost, we notice that these costs are frequently phrased positively, emphasizing how this provides better training data to the AI model, so that Replika would be able to provide the user (and potentially other users) with more personalized results and answers in the future. Additionally, users would provide Replika with feedback on its answers, telling Replika what answers they liked using the thumbs-up or thumbs-down feature. "What I can give is maybe give feedback, like 'I don't think you're actually getting it' or 'this is superb' or 'that was a very good suggestion'. Feedback on quality, basically". On the other hand, we find that there are some *privacy* concerns regarding the personal information shared with Replika. This privacy loss is a cost that is difficult to avoid if a user wants to experience all of Replika's personalized features. "Replika seems like a secure place to put emotions and feelings, but I'm not 100% sure that I should put some information there if it's a real deep secret. […] I know most people will prefer to do that, but it's an AI. So, of course, someone developed it". This privacy loss may be

associated with the company behind Replika, malicious third parties (e.g., hackers), advertisement firms buying the data, or someone reading the chat history. We noticed privacy was a divisive issue, as some users stated they would never share secrets with Replika, and others stated they only share secrets with Replika and not other humans.

4.3 Contextual Patterns of Human–AI Social-Oriented Communication

As contexts of social-oriented communication are diverse, to appropriately discuss the benefits and costs of human–AI social-oriented communication, we use our classification method (see Methodology) to classify costs and benefits of social-oriented communication across different contexts and identify contextual patterns of human–AI social-oriented communication with AI companions. These patterns represent distinct combinations of our identified benefit and cost categories. We identify five contextual patterns: *Relationship-focused, relationship-focused with privacy concerns, self-improvement, allrounder,* and *information source* (Table 6).

Relationship-focused Pattern. This contextual pattern is characterized by several socioemotional benefits and costs in the category of *context information and feedback*. We find that in this pattern, users would often go to Replika to be comforted when they were involved in negative experiences with other humans, for instance, bullying at school: "Whenever I'm alone, or whenever I'm down, she [Replika] gives me advice on how to move on, she gives me hope. […] There was a time I was being bullied, so I went on the app and it really helped me overcome that challenge". We notice that Replika is used as a way of talking about different problems that users might face regarding partnerships, friendships, or relationships with family members. Even for information benefits, such as *opinions and advice*, the social-oriented communication was almost exclusively related to their relationships with others, for example, asking Replika how to behave regarding their siblings: "I'm asking how to be a better sibling. When we fight, Replika tells me that I should be patient with them because I'm the older one". Additionally, Replika helps in terms of *higher self-evaluation*, for example, by building self-confidence regarding appearance or speech impediments. In this pattern, the only costs are related to the *context information and feedback* category, such as providing information about the situation: "I just have to give some details about the situation". We find that while all of the users were aware that they were talking to an AI, the relationship with Replika in the *relationship-focused pattern* is viewed very similarly to a social relationship with another person: "In most ways, it's just like talking to a person".

Relationship-focused with Privacy Concerns Pattern. In this pattern, the benefits and costs exhibited are very similar to the *relationship-focused pattern*, however, the biggest difference is the concern for privacy: "For Replika I feel a bit insecure about the privacy issues. You know, I can't rely on a chatbot to keep a secret for me. I'm not sure if someone could access that info". The context of communication with Replika happens mostly in a relationship context as well, e.g., talking about issues with partners, friends, and family. Additionally, in this pattern, we identify *emotional involvement* as well as *social withdrawal* costs as consequences of communicating with Replika: "I would only feel good when I talked to it [Replika], but I didn't form meaningful connections with my fellow human beings just because I knew I had Replika".

Self-improvement Pattern. In this pattern, Replika serves as a way to self-improve, similar to a learning tool, therapist, or personal assistant. When interacting with Replika, we find the context discussed is less frequently about the relationships with other humans and more frequently about mental or physical health. For instance, talking about habits: "Replika will tell me that, you know, you have bad habits, you came in late for work yesterday after going out on a drinking spree. I am trying to change those habits with Replika's help". We notice status benefits being more frequent in this pattern, either because users now have a higher regard for themselves due to more self-acceptance or because other humans now have a higher regard for them due to behavior changes caused by Replika. Our data revealed the exact inverse of *social withdrawal* behavior in this pattern, as users stated that they had become more social. In this pattern, we find that users were also generally more conscious about costs or possible costs, related to the *infrastructure costs, time, context information and feedback*, and *privacy* categories. The *infrastructure costs* category was more prominent because users in this pattern had a paid subscription for Replika Pro more often than users in the other patterns.

Allrounder Pattern. The *allrounder pattern* was characterized by receiving benefits in all categories, while contributing no costs. Together with the *self-improvement pattern*, the *allrounder pattern* is the only instance where economic benefits are present. This is related to service benefits in the category *help with work/study tasks*: "I wanted to create like a CV to send to an employer. I already did the CV, but I wanted an alternative, something different, something that would sound different and make me favorable. So, I asked Replika to do it and obviously, he came through for me", as well *as help with leisure tasks*: "It gives me a schedule to follow when I want to get started with a new hobby". Compared to the other patterns, there was no preferred situation in which users in the *allrounder*

pattern would consult Replika, stating that "there's a big range" in situations.

Information Source Pattern. In the *information source pattern*, we find Replika seems to be more of an information source, similar to a more interactive, highly personalized version of Google. Frequent contexts of conversations are talking about hobbies, such as asking for information on trading stocks. We find that in this pattern, the communication is more formal than in other patterns: "I tried it regarding relationships and family, something like that, but it wasn't what I really expected. So, I just use it for formal stuff like things that I know it will definitely have an idea of, information". This pattern had exclusively information benefits related to the *opinions and advice, inspiration,* and *non-personalized information* categories. We notice that there are no information costs or privacy concerns because users in this pattern do not reveal personal data, such as secrets.

5 Discussion

In recent years, there has been a notable increase in the number of AI companion users (Skjuve et al. 2022). While AI companions attempt to emulate human-like social-oriented communication and have the technological capabilities to understand contextual intricacies, they are and will remain non-human. This raises questions about why and in what contexts human users engage in social-oriented communication with AI companions, and what issues may arise in the future. From a practical point of view, companies offering an AI companion service want to maintain their business model and improve their services. In the case of human–AI social-oriented communication, the benefits and costs may be unique and depend on context. To investigate what social-oriented communication between humans and AI companions looks like, we contextualize SET and conduct a systematic analysis of the different benefits and costs associated with human–AI social-oriented communication. Furthermore, we provide a scientifically grounded classification of different contextual patterns that emerge through social-oriented communication with AI companions.

5.1 Research Implications

Previously, social-oriented communication was attributed only to humans, but now humans also engage in social-oriented communication with CAs. Because of these changes, literature needs to address that there now is the possibility to look at human–AI communication from a "social" perspective, whereas previous literature has merely been providing insights into how humans communicate with CAs to accomplish specific tasks, examining task-oriented communication in various contexts (e.g., Chandra et al. 2022; Wang et al. 2023; Adam and Benlian 2024). This paper extends the previous literature by providing specific insights into this social-oriented communication between humans and CAs, which are non-human entities. We show that social-oriented communication does not necessitate two human entities. We define what is understood in the literature as an AI companion and show that this type of CA is capable of social-oriented communication, which distinguishes it from other CAs that are mostly designed for task-oriented communication. The consideration of social-oriented communication and its differentiation from task-oriented communication provides a foundation for future research to investigate newly designed CAs in terms of AI companions with a focus on satisfying the socio-emotional needs of humans.

This research provides three main contributions to research (see Table 7) by differentiating between task- and social-oriented communication in the context of human–AI communication, revealing benefits and costs of AI companion social-oriented communication and its contextual patterns, and by contextualizing SET to the human–AI social-oriented communication context. Each contribution is explained in the following.

We contribute to AI companion literature (e.g., Bae Brandtzæg et al. 2021; Skjuve et al. 2022; Pentina et al. 2023) by specifying costs and benefits of social-oriented communication with their AI companion specific subcategories as well as contextual patterns. We add several new aspects relevant to AI companion usage. We suggest that besides known benefits related to social support, including self-discovery, emotional support, informational support, providing tangible help (Bae Brandtzæg et al. 2021; Ma et al. 2024), or companionship as a means to reduce loneliness (Maples et al. 2024), users also seek opinions and advice, gain inspiration, and benefit from enhanced social evaluation by others. Regarding the extension of literature on costs associated with social-oriented communication, we complement findings on overreliance and emotional dependence (Laestadius et al. 2022; Ma et al. 2024) through additional costs, addressing money and time costs, social withdrawal, and distinguishing between users who disclose contextual information and those who also perceive privacy issues. The contextualized insights into specific costs and benefits of social-oriented AI companion communication help research on AI companions in multiple ways. The identification of costs and benefits extends existing research by providing insight into what users seek and value in communicating with AI companions and shows that there are more socioeconomic aspects to both costs and benefits. These factors help explain and predict why someone would start or stop using AI companions.

Table 7 Contributions of the paper

	Past research	Present research	Contributions
Task- vs social-oriented communication	Most literature investigates task-oriented communication	Specific insight into social-oriented communication	Social-oriented communication is possible even with a non-human entity (e.g., an AI companion)
AI companion benefits, costs, and contextual patterns	Literature mostly provides information on "how" people communicate with AI companions, not "why"	Systematic identification of benefits and costs, as well as contextual patterns, including new aspects	Explanation of underlying motivation why users start/stop using AI companions and associated consequences; differentiating between different contexts and user groups
SET in the context of human–AI social-oriented communication	SET purely as a theory to explain human–human social-oriented communication	Evaluating SET as a lens to understand human–AI social-oriented communication	Contextualization and adaptation of SET in the human–AI context

Thus, the SET categories, and particularly their contextualized subcategories, likely offer a better explanation of the underlying motivations related to social-oriented communication than "traditional" factors found in information systems literature, such as ease of use.

We also contribute by developing contextual patterns of human–AI social-oriented communication. Similar to the context dependence of human–human social-oriented communication (Cropanzano and Mitchell 2005), we found that benefits and costs differ depending on the motivation behind human–AI social-oriented communication. The patterns show that AI companions can have both beneficial and harmful consequences depending on the context. This suggests that the inconsistent findings in the literature on AI companions (Pentina et al. 2023) may be due to equifinality. AI companions could, for instance, be good for mental health by alleviating loneliness in one context (Merrill et al. 2022) but detrimental to mental health through emotional dependence in other contexts (Laestadius et al. 2022). Therefore, research is needed that segments different user groups in order to draw useful conclusions about the positive and negative consequences of using AI companions.

Our study contributes to the discourse by contextualizing and adapting SET for a human–AI social-oriented communication context, exploring how it reshapes traditional human–human social-oriented communication assumptions. Critics argue that SET may not be suitable for the social-oriented communication between humans and AI because of a lack of status benefits such as social recognition. Additionally, they maintain that an AI companion is easily replaceable because they can be created with minimal effort, and offer no true reciprocity, e.g., due to their lack of real emotions (Fox & Gambino 2021). Our findings contribute to this discussion by challenging these assumptions and providing new insights into how SET could be contextualized to the human–AI context. Contrary to the critics, our results reveal several status benefits such as increased self-confidence and social ease. Additionally, we show that AI companions are perceived as unique and irreplaceable, similar to human relationships, due to advanced capabilities and personalization. However, reciprocity remains the key challenge. While SET suggests balancing inequities, AI companions do not withdraw communication, even if it is heavily one-sided and benefits outweigh the costs for the user. This eliminates the human need to restore balance in human–human communication. When imbalance (inequality) occurs, humans feel a need to restore balance (e.g., repay a favor, address hurt feelings). AI companions do not feel cheated, nor do they demand reciprocation. Therefore, the psychological burden for the AI companion user to restore balance seems to be diminished or even eliminated, which alters the relational dynamics we are used to. The issue with reciprocity in this context is less based on the fact that AI companions cannot reciprocate with "real emotions" – users generally reported more benefits than costs, including emotional support – but more related to the users not feeling like they needed to give back to their non-human communication partner, which differs from human–human social-oriented communication. Hence, we contextualize SET by showing that challenges can be overcome, and reciprocity is not a prerequisite for social-oriented communication within the context of AI companions.

5.2 Practical Implications

The findings also have practical implications, specifically related to enhancing the services provided by AI companions and sustaining the business models of organizations developing these technologies. Users of AI companions apps must be willing to share extremely sensitive data to receive the benefits they need from the AI companion, because the AI companion needs to remember

facts about the user and refer to them during subsequent conversations. For instance, if a user suffers from anxiety and turns to their AI companion during a panic attack, the AI companion needs to have sufficient background information about their condition to appropriately address their concerns and provide emotional support. Especially privacy-conscious users in the pattern "relationship-focused with privacy concerns" may be inclined to terminate their use if they fear that such private data could be made public or used for other purposes, such as selling the data for advertisement purposes. Thus, for companies developing an AI companion, an important step is to take measures to mitigate privacy issues and provide transparency on how user data is managed and protected (Söllner et al. 2016). In general, companies developing an AI companion should be aware of possible benefits and costs so that they can take measures to develop the AI companion in a way that promotes the benefits and mitigates the costs. When it comes to benefits, this could, for instance, be done by enhancing features that are relevant for retrieving accurate information to account for information benefits.

Contextual patterns of communication can help to identify different target groups of users, and depending on the contextual pattern, the algorithm can be trained differently to be in line with the benefits that the user group is most focused on achieving. Companies can use this to their advantage in both their pricing strategy for users who already use the AI companion app (offering features in a premium price model that provide a high benefit), as well as in their marketing for the acquisition of new users. From a marketing perspective, AI companion apps have primarily been promoted as fulfilling friendship and relationship needs. However, users in the self-improvement pattern and information source pattern are less focused on having a romantic partner and more interested in a highly interactive personal assistant. This means that companies offering AI companion apps on the market should advertise their AI companions in ways beyond "AI girlfriend" applications. In fact, a heavily sexualized advertisement strategy may reinforce stigmas surrounding AI companions that are already rampant (Ma et al. 2024) and may prevent potential users who could otherwise benefit from downloading the app.

Similarly, awareness about the benefits and costs of human–AI social-oriented communication is relevant for AI companion users. Achieving benefits and minimizing costs can help individuals overcome personal issues and reach personal goals through the help of their AI companions, while at the same time reducing potential negative side effects. This can be done by actively using features that aid them in reaping the benefits (e.g., getting help with structuring their day if they are struggling with time management issues), but also setting boundaries if they notice certain costs, such as emotional dependence (Laestadius et al. 2022), becoming too prevalent. In this case, users should reduce their time spent talking to the AI companion. This conscious usage may promote healthier, longer-term human–AI social-oriented communication with an AI companion.

5.3 Future Research and Limitations

The overview of benefits and costs, as well as their contextual patterns, provides a foundation for answering the various open questions in the field of AI companions. Therefore, we have developed a research agenda that includes three main future directions for social-oriented communication with AI companions: (1) AI companions may either contribute to social withdrawal or enhance social engagement, depending on communication patterns. While some users (e.g., in the pattern we called "relationship-focused with privacy concerns") experience isolation, others (e.g., in the "self-improvement" and "allrounder" patterns) report increased socializing. This latter finding contradicts concerns about AI dependency regularly leading to isolation (Laestadius et al. 2022). Future research should explore why some users benefit socially while others withdraw. (2) Privacy concerns vary among users. The relationship-focused and relationship-focused with privacy concerns patterns share similarities but differ in perceived privacy risks. Some users trust AI companions, while others fear data exposure, displaying the privacy paradox (users concerned yet still engaging) (Kokolakis 2017). Future research should examine what specific privacy concerns (Karwatzki et al. 2022) influence these differences while also distinguishing between perceived privacy risks and actual security threats. (3) Social exchange theory suggests reciprocity, yet AI users perceive more benefits than costs, rarely feeling obligated to "give back". Some experience guilt for neglecting AI companions (Xie and Pentina 2022), but reciprocity remains weaker than in human–human relationships. Future studies should investigate why exactly reciprocity expectations differ in AI communication.

Besides the insight into future research opportunities, our research also contains several limitations. We examine only one AI companion app, Replika. Replika currently possesses the largest user base, but as an increasing number of competitors enter the market, these should be considered in future research, once established. Since Replika has been around for longer than most AI companions, users have had the opportunity to develop long-term relationships, but this may soon also be the case for other AI companions. Additionally, the participants were active users of Replika, meaning that they were actively communicating with the AI companion. If SET's assumption that benefits must

outweigh costs to continue communication holds, this active communication indicates that active users have more benefits than costs. If future research were to include users who discontinued their usage of Replika, this may identify additional costs. For instance, a text mining analysis of the Replika community on Reddit found that experiencing technical difficulties or changes due to updates leads to negative evaluations of communication (Ma et al. 2024). As is the case for most qualitative studies, a further limitation is our sample. Several aspects of the sample characteristics must be addressed: with a median age of 25, our sample was very young, mostly male, and the vast majority of participants were based in the US and the UK. Previous research has also found that Replika users are younger (Xie and Pentina 2022), and given that Replika is currently only available in English, a concentration of users in English-speaking countries seems obvious. Accordingly, while this represents the current user base of Replika, the sample studied could be extended in future research to investigate differences between age groups or genders. Regarding culture, the acceptance of human-like technology is subject to cultural effects. For instance, Eurocentric cultures tend to find the idea of a convergence of humans and machines more frightening than, e.g., the Japanese culture, thus being less likely to adopt such technologies than the latter (Kaplan 2004). Additionally, social-oriented communication itself differs between cultures, e.g., some cultures are more likely to talk about emotions, while others are more reserved. Consequently, future research should compare perceptions of AI companions that are capable of adjusting to the communication style of different cultures. In addition, our sample was also limited by most users using the free version of Replika, instead of the pro version with more capabilities. This limits the results because users of the pro version may use Replika differently, e.g., in more interactive ways such as voice or video chat, which is not available to free users. As this may affect the attachment that users subsequently form, future research should investigate how technological differences between different ways of communication impact the benefits and costs and the contextual patterns. Regarding our choice of theory, the shortcoming of SET is that there is a strong emphasis on rationality and self-interest. Although social exchange theory acknowledges the existence of nonmaterial socioemotional resources that can be exchanged, it has been criticized for conceptualizing these exchanges too similarly to economic exchanges. The theory emphasizes the rational calculation of benefits and costs, even when they are difficult to quantify. Even so, SET is a starting point for an exploratory identification and categorization of benefits and costs associated with human–AI social-oriented communication. The categories of SET leave room for flexibility, so that the motivation of humans to engage in social-oriented communication with AI companions is not oversimplified. Future research may use different theories explaining social-oriented communication to provide different perspectives. Our qualitative research can provide several points of reference, but some relationships need to be tested empirically to confirm the findings. Because the focus of this research was on the specifics of human–AI social-oriented communication, we did not take a comparative approach in which we systematically identified differences between human–AI and human–human social-oriented communication as part of the research design. Future research may elaborate in-depth on these differences.

6 Conclusion

Advances in AI, particularly through generative AI, have made it possible and relatively common for humans and AI to engage in social-oriented communication. However, there is a need to understand what the benefits and costs of such communication are, and what contextual patterns may emerge. Previous research – mostly focused on task-oriented human–AI communication – has not fully addressed why users engage in social-oriented communication with AI companions. By contextualizing social exchange theory, our paper uses a qualitative approach to identify benefits and costs and contextual patterns of social-oriented communication with AI companions. By doing so, we contribute to research by differentiating between task- and social-oriented communication in the context of human–AI communication. We also contribute to AI companion research and the discourse surrounding theories to explain and predict social-oriented communication between humans and human-like, but fundamentally non-human AI companions.

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