"Help! I Have a Problem" – Differences between a Humanlike and Robot-like Chatbot Avatar in Complaint Management

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Abstract

To distinguish from other competitors, companies have to establish good quality and price but also an excellent service policy. Especially the after-sales service should guarantee that customers having problems are supported and satisfied. Following, good complaint management is important. With the increase of economically profitable chatbots, there is a possibility to provide a 24/7 service to customers. To investigate what kind of chatbot avatar, which compensation, and what kind of reaction lead to a higher behavioral intention, a 2x2x2 between-subject design was conducted (N=389). The results show that the choice of the avatar, the reaction, as well as the compensation, play a decisive role in influencing user behavior and, thus, increase the probability that the customer, despite a complaint, returns and buys again from the retailer. Further, the behavioral intention can be explained by the mediating influences of anthropomorphism and the evaluation of redress.

1. Introduction

In recent years, the retail industry has been enjoying increasing profits through new sales and service opportunities enabled by constant digitalization. Not only does the industry use artificial intelligence (AI) through Industry 4.0 and the Internet of Things, but online retailing also gains new opportunities through intelligent helpers and automatism, which prove to be advantageous both economically and in handling. Often this AI is personified in either a physical (e.g., smart speakers, such as Amazon's Alexa or Google Home) or sometimes only in a virtual (such as information or communication technology) form to make it more tangible and real for the user. This AI is often presented in so-called chatbots, which are virtual communication partners that enable written communication via chat. Usually, these chatbots are personalized by a name and a virtual, visual appearance. They create the impression of communicating with a real person as an equivalent to a human service employee in a company.

The market size of chatbots grew rapidly to $250 million US dollars in 2017, and the market size is expected to exceed $1.34 billion US dollars by 2024 [1]. Furthermore, chatbots are used in 28% of the real estate business, followed by the travel industry (16%), education (14%), health care (10%) and finance (5%) [2]. Additionally, more than 21% of adults in the US and more than 80% of Generation Z use both language- as well as textbots for information searches and shopping [3], which reveals that innovation in AI and machine learning may enhance the ability of chatbots to drive the market [4]. The problem with the rapid increase is that many companies do not have significant experience with chatbots and AI. They lack the expertise to define the core aspects of the chatbot and fail to realize that it is possible to make chatbots as human as possible or to emphasize the artificial aspect [5, 6].

Because of their skills and ever-increasing number, chatbots are of significant relevance for companies, and thus, the optimization of chatbots has gained relevance. Here, digitalization impacts complaint management, especially for companies that sell services or products to end users. For instance, classical human-human interaction is continuously being replaced by human-machine interactions [7]. Instead of a human, a chatbot manages and processes the complaints or at least manages the initial contact with the customer. The advantages for the company are automated processes and reduced personnel costs, while the user enjoys the advantage of being able to contact customer service 24 hours a day because the chatbot accesses all relevant information through predefined algorithms and programming and, in the best case, remains patient and friendly at all times.

Based on prior research regarding general complaint management strategies, one could assume that a successful complaint handling process using a chatbot has a positive effect on the relationship between customer and company, whereas a negative experience

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leads to a negative impact, which afterward could lead to negative word of mouth [8]. Thus, the success factor of service is increasingly important in differentiating companies. Chatbots can provide infinite service and are economically more profitable for a company [9] because complaint behavior influences loyalty and profitability [10]. The faster a company can respond to a customer's complaint, the faster that anger and frustration toward the company may vanish [11]. Furthermore, customers who complain because of a service failure, but whose concerns can be satisfactorily resolved, tend to display higher repurchase intentions than customers who had no negative experiences in an online environment [12]. Paired with the last aspect, open communication regarding a failure can generate a positive image of the company and thus a positive service recovery [13]. Applied to the context of chatbots in complaint management, conversational style and behavior are crucial in designing chatbots [14]. A chatbot that is polite and answers in a friendly manner is evaluated more positively, which is also expected to have an influence during a complaint. Therefore, proper complaint handling can be a useful tool for companies to strengthen customer loyalty and future purchase intentions by increasing the expected benefit of the purchase [14]. When a company's response consists of, for example, apologies and sincerity rather than primarily promotional information, the relationship quality between company and customer increases, and the behavioral intention of the customer is positively affected [15].

Furthermore, former research has revealed that humanlike characteristics can have a positive influence on the behavioral intentions concerning technology acceptance and satisfaction with the service [16, 17]. Specifically, the visual appearance can be a decisive influencing factor in the evaluation of the chatbot, since this appearance, in addition to the written communication, represents the initial perception of the chatbot. Therefore, the use of chatbots as a form of AI is becoming more attractive for companies, as their state of development allows competent and efficient usage. Moreover, costs can be reduced because there is no longer any need for human employees to manage customer complaints.

AI can simulate empathy or act objectively and in a fact-oriented manner [18], and although both automation and AI are primarily about efficiency, it can be observed repeatedly that users want warm, friendly interactions, especially in the service area, making this a decisive factor in the evaluation of corporate service [19]. Numerous studies indicate that empathy is a decisive element in interpersonal interactions and in the context of relational perspectives [20]. For instance, several studies have demonstrated that empathy is a crucial factor for service marketing, not only offline, but also in a virtual space, e.g. [21]. Applied to chatbots, these results suggest that a humanlike and more empathic representation of a chatbot may achieve positive user perceptions.

Summarizing, to our knowledge, there are scant studies that combine the aspect of complaint management strategies and the effects of different avatar representations by comparing humanlike characteristics. However, for the future, it is to be expected that AI will act more efficiently in handling tasks and solving problems both for the company and the customer. Thus, it may be positive for retailers not only to improve the handling and user-friendliness of AI, such as chatbots, but also to expand the human and emotional components that many users desire. In virtual contexts, everything seems distant, anonymous or machine-like; therefore, empathy and humanity could minimize this perceived distance and build a positive bond between retailer and customer. Thus, the findings of this study should allow online merchants and companies that use or are considering using chatbots to decide which visual features and characteristics the AI should present to enable the customer to have a positive experience, especially in complaint handling, where it is often decided whether the customer will remain with the company, as well as to increase profits in the long run.

Hence, the purpose of this study is to examine how the chatbot's reaction to the customer as well as the graphic representation of a robot-like chatbot avatar or a humanlike avatar affect the customer's repurchase intention in a complaint process. Thus, the research questions are as follows:

(1) To what extent does the choice of an avatar (robot or human) affect the customer's repurchase intention?

(2) To what extent does the less empathic or more empathic behavior of an avatar influence the repurchase intention?

(3) What effect does the additional provision of monetary compensation have on the repurchase intention?

(4) To what extent do human characteristics generally play a relevant role?

2. Literature Review and Hypotheses

We developed our conceptual framework based on anthropomorphism and complaint management research (see Figure 1). In summary, we propose that the representation of the chatbot avatar itself, its reaction to customers and the offer of a monetary compensation, influence customers' repurchase intention when these factors are mediated by anthropomorphism and evaluation of redress.

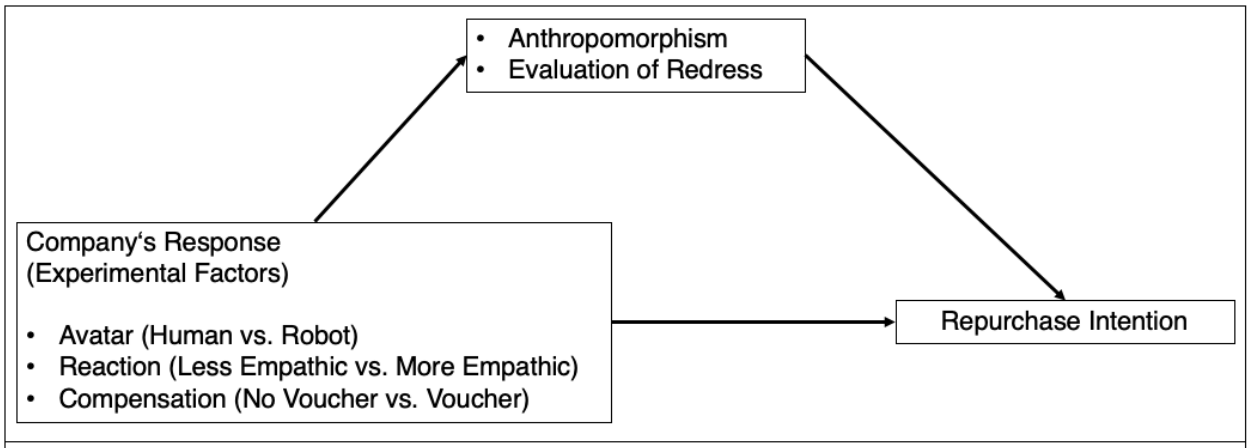

Figure 1 . Conceptual Model

Generally, the term complaint management is understood as a defensive reaction by the company to gain customer loyalty. Complaint management has the task of transforming the dissatisfaction of a customer into satisfaction. This can be accomplished by monetary recompense or other forms of compensation [22].

Therefore, complaint management covers the receipt, investigation, management and prevention of customer complaints [23]. It does not only involve repairing, rectifying or replacing a faulty product or service, but also satisfying the customer subsequent to a fault [24]. Customers form opinions about the service quality of a company on the basis of communication with the contact person [25]. The literature reveals that service quality has a significant effect on future buying intentions, which means that customers are more willing to repurchase from a company if they know that the service is responsive [26]. In this study, this service quality is reflected in the appropriateness and handling of the service employee – here, the chatbot – with a complaint. This is reflected by the empathic reaction of the service employee toward the customer and by the offer of compensation for circumstances that have arisen, which in this case is a monetary redress.

Chatbots are computer programs that process linguistic input from a user and then generate an intelligent answer [27]. During an interaction with the customer, the chatbot simulates the human language through integrated algorithms to make the communication between a human and the computer more natural [28]. The majority of the time, chatbots recognize certain phrases and provide ready-made answers [7].

If the program that customers communicate with is visualized by, for example, a human being, an animal, or a robot, then this visualization is called an avatar. This represents a virtual character that companies or people can use to represent themselves [29]. In this context, anthropomorphism is described as attributing human characteristics to non-human things [30].

Since this study investigates the effect of two representative chatbot avatars, in addition to the monetary compensation and the reaction, we must examine the literature to justify the choice of the investigation of the visual representation. Previous research has indicated that the pictorial presentation influences users' behavior in online communities [31] and that the appearance of the avatar influences the psychophysiological reactions of users [32]. When chatbots are representatives and human replacements for the company, it seems to be important to make them similar to human beings because people evaluate those who are similar to themselves more positively. Therefore, a humanlike morphology affects the behavioral intention [33] and evokes the reaction of the user in that the user treats chatbots as humans, evaluating them according to their appearance and social behavior [34]. Go and Sundar [35] mention that the visual presentation of a chatbot can be more human or artificial. Thus, by the manipulation of visual cues, users perceive the chatbot differently. For example, images of humans on a website convey human contact [36]; similarly, the presentation of the human avatar as a chatbot can be identified as this "human" contact.

Visual cues are one part of social cues [37] that affect users' behavior by using, for example, chatbots. In this context, humanlike visual cues symbolize the chatbot's social presence [38]. Speaking theoretically, social presence was originally defined as the "degree of salience of the other person in the interaction" [39]. Applied to this study, an anthropomorphic presentation such as a human avatar can be perceived as that other person during a complaint process. However, the representation of the chatbot and thus the visual attributes are not the only factors that foster the feeling of being with another person; the chatbot's reaction in a

critical situation, such as during a complaint, is also essential. Moreover, the presence of an avatar generally may provide an impression of face-to-face communication, which can positively affect the evaluation of the communication and thus the retailer [29].

In general, the Social Presence Theory explains how users chose the communication channel and that different channels have various potential to awaken users' awareness about the presence of another social actor [40]. Therefore, users can be motivated to repurchase when anthropomorphic elements can be identified. It has been found in former studies that social presence has an influence on the shopping intention, which is why we argue that in a critical situation, such as a complaint, the humanlike representation and behavior of the avatar can affect the repurchase intention [41]. Comparatively, Reeves and Nass [42] reveal that people treat technology, such as avatars, socially as soon as the computer or the technical device indicates social signals; in our case, for example, this is empathy in the form of the computer's "reaction." This leads to the assumption that in this study, the AIs, as humanlike and empathic avatars, have a positive influence on users' behavioral intentions. Thus, we want to investigate whether there is a difference in the perception of two variations of the avatar (humanlike vs. robot-like) and which type of avatar reaction most affects the repurchase intention. Moreover, literature confirms that the familiarity with an avatar or an object increases when people add humanlike characteristics to it [43].

Combined with this, humanlike cues, such as the appearance and the language style, influence perceived anthropomorphism of an avatar and the behavior toward a company [44]. Specifically, social presence is an important factor in avatars and service interactions [45]. Furthermore, referring to the service environment, previous research has presented that avatars' humanlike characteristics are seen as decisive factors for user reactions and satisfaction. Moreover, social presence and cues are associated with an increased behavioral intention [46, 47]. According to Gursoy et al. [48], anthropomorphic cues influence the acceptance of artificial devices in service encounters, such as the use of chatbots for receiving complaints. As mentioned in the Computers are Social Actors (CASA) paradigm [49], technology itself, including chatbots, is seen as a social character with anthropomorphic cues that influence the behavioral intention. The CASA paradigm means that humans treat computers socially as soon as they indicate any kind of human behavior. One reason for anthropomorphizing is the desire for a social interaction [50], which can be also seen in a conversation with a chatbot that demonstrates human characteristics, such as appearance and empathy. Moreover, social presence of any kind that is symbolized through anthropomorphism and the interactivity itself is reported as an influencing factor for the perception of anthropomorphism and on the behavioral intentions [51], resulting in additional positive intentions.

Based on the literature, both demonstrating empathy and attentively listening to a complaint have a crucial influence on the experience of customer service [52]. Especially in complaint management, empathy can be a decisive factor in generating customer complaint satisfaction [53]. Empathic contact persons generate positive emotional reactions from the customer, whereby they build a positive relationship with the other person more quickly. This is primarily intended to generate customer loyalty and influence the customer's behavioral intention, since the customer is more likely to terminate a negative relationship [54]. Moreover, the contact persons are expected to place themselves in the shoes of the customers and understand their feelings [25]. Applied to our research, the contact person is a chatbot as a representative for the company. Studies in the health care context reveal that empathic and emotional chatbots are preferred over non-empathic ones [55], which means that users transfer their expectations for human contact persons to the virtual contact person – the chatbot. The chatbot that expressed sympathy was evaluated more positively, and participants were more willing to continue working with it compared to those that demonstrated no empathy [56]. Moreover, research generally reveals that the behavioral intention can be influenced by the empathy of a chatbot [57]. Therefore, the empathy of a chatbot should allow the customers to feel that their personal needs have priority. Hence, it is important to investigate empathy in a critical context, such as during a complaint process.

In addition, our study addresses company complaint management as a service process, in which chatbot avatars are involved. In complaint contexts, however, not only the avatar plays a role, but also the type of complaint management strategy is important. Companies offer either tangible or intangible benefits when processing complaints. Tangible benefits, for example, include monetary compensations (e.g., vouchers or discounts), while intangible benefits imply non-monetary factors, such as apologies. Both tangible and intangible elements can be utilized as redress in complaint management situations [58, 59]. Gelbrich et al. [60] demonstrated that for future behavioral intention, the degree of the compensation is dependent on the relationship between customer and company, but generally, it is necessary to offer at least some compensation. Moreover, especially in the online environment, immediate compensation is expected by

users to overcome their dissatisfaction and to allow them to feel that they have been treated fairly [61].

In summary, we hypothesize:

H1: The repurchase intention is influenced positively by (a) the human likeness of the avatar, (b) the empathic reaction, (c) the compensation offered by the avatar and (d) the interaction between these.

H2: The effect of (a) the visual representation of the avatar, (b) the avatar's reaction, (c) the compensation and (d) the interaction between these on the repurchase intention is mediated by anthropomorphism.

H3: The effect of (a) the visual representation of the avatar, (b) the avatar's reaction, (c) the compensation and (d) the interaction between these on the repurchase intention is mediated by evaluation of redress.

3. Method

To verify the hypotheses, we conducted an experimental study with a 2 (human vs. robot) x2 (less empathic vs. more empathic) x2 (no voucher vs. voucher) between-subject design using an online survey. The subjects were recruited randomly via social media channels and online forums.

Once the participants began the questionnaire, they were asked to read the scenario and imagine themselves in it. Concurrently, they were provided with information about the complaint process and about the talk with a chatbot. The experiment began with the presentation of a scenario, after which each participant was presented with a chat history that varied in its avatar presentation and content. The service failure – that a pair of ordered headphones were delivered broken and that an exchange of the product was suggested – was constant in all scenarios. They were asked to imagine that the ordered headphones were broken and that they complain about this to the retailer with the chat function. Based on the introduction, they know that the contact person they are communicating with is a chatbot. However, there was a difference in the representation of the selected avatar, which visualized the contact person. Either a human or a robot was visualized as the contact person for the complaint. Moreover, the chatbot apologized for the problem, or the answer offered no form of personal apology. Furthermore, there was a manipulation by offering or not offering a voucher as compensation for the service failure. These variants resulted in eight versions of the complaint handling for the same initial problem.

The questions were based on well-established multi-item scales from the literature in the context of complaint management and anthropomorphism. All scales were measured with 7-point Likert scales (1 = "I totally disagree" – 7 = "I totally agree"). To measure the repurchase intention, we used four items from Bhattacherjee [62] (e.g., "In the future I will use offers from this provider again.", $\alpha = .815$). Based on Davidow's study [8], we adopted the three item scales of evaluation of redress (e.g., "The answer from my contact person left me in an improved position than I was before the problem.", $\alpha = .765$). Additionally, we relied on Bartneck et al. [30] measuring anthropomorphism with three items (e.g., "artificial – alive", $\alpha = .821$) via a semantical differential from 1 to 7.

A manipulation check was conducted to ensure that the participants in the survey perceived the manipulations as intended. For the representation of the avatar (human vs. robot), we confirm a successful manipulation. The participants were asked to choose whether they saw a human or a robot chatbot. The analysis reveals that the majority of the participants who were presented with the human chatbot identified the avatar presentation correctly (83%), while the majority of those who were assigned to the robot chatbot thought that they had contact with a robot-like chatbot (92%). The participants who answered incorrectly were not considered in this study. Consequently, 389 participants contributed to the study ($n > 30$ in each condition, $M_{age} = 29.00$, $SD = 12.49$, 57.1% women). Additionally, a t-test indicated that the characteristics between each experimental factor, reaction (less empathic vs. more empathic; $M_{more\ empathic} = 4.75$, $SD = 1.12$; $M_{less\ empathic} = 4.41$, $SD = 1.12$) and compensation (no voucher vs. voucher; $M_{voucher} = 4.82$, $SD = 1.12$; $M_{no\ voucher} = 4.37$, $SD = 1.10$), differed significantly from each other (reaction: $t = -2.947$, $p < .01$; compensation: $t = -4.022$, $p < .001$). Concerning the compensation, participants were asked with a semantic differential ("no voucher" to "voucher") whether they were offered a voucher. To check for the reaction, five items were adapted from Homburg and Fürst [63] (e.g., "The contact person understood the problem exactly," $\alpha = .780$). Both scales were based on a 7-point Likert scale (1 = "I totally disagree" – 7 = "I totally agree").

4. Results

Since a significant direct effect between the experimental factors and the repurchase intention is necessary to determine mediations, we conducted several ANOVAs to test our hypotheses. A significant positive influence of the avatar on the repurchase intention is found ($p < .01$), as well as for reaction ($p < .01$) and compensation ($p < .001$); the effect strength (partial eta squared) for compensation is observed to be the strongest for all three experimental factors, while R^2 is reported to be .091. Thus, the hypotheses (H1a–c) can be confirmed, indicating a positive influence of all three experimental factors on the repurchase intention (see

Table 1). The strongest mean value for the repurchase intention is observed for the scenario of a more empathic human avatar that offers compensation (M = 5.03, SD = 1.21), while the mean value for the scenario of a more empathic robot avatar that offers compensation is slightly lower for the repurchase intention (M = 4.77, SD = 1.06; see Table 1). However, when the mean values reveal differences, there is no significant effect between these two groups. The lowest mean values for the repurchase intention are observed for a human avatar (M = 4.41, SD = 1.02) and a robot avatar (M = 3.97, SD = 1.17, t = 2.08 $p < .05$) that are each less empathic and provide no compensation.

No significant interaction effects between each of the three experimental factors can be reported. Therefore, we cannot confirm H1d. The results further present that in the main effects, the primary driver for the human avatar is empathy, as it has a higher mean value for a more empathic reaction that offers no compensation (M = 4.86, SD = 1.02) compared to offering compensation with a less empathic reaction (M = 4.68, SD = .99). Furthermore, the mean values here portray a difference in the perception, whereas statistically, no significance can be seen between these two groups. Nevertheless, the absolute mean values together with previous studies confirm that empathy is more important than compensation when the avatar is human. Additionally, when the avatar is robot-like, empathy is also more important than compensation.

To identify whether mediating variables influence the effects of the experimental factors on the repurchase intention, we ran multiple analyses of covariance (ANCOVA) based on previous literature [64, 65]. To verify whether the postulated variables anthropomorphism and evaluation of redress mediate the form of service recovery, we first investigated, following the approach of Baron and Kenny [66], the direct effect of the experimental factors on the mediators. Therefore, anthropomorphism and evaluation of redress are included as covariates. For all three experimental factors, a significant positive effect on anthropomorphism can be determined (avatar: $p < .001$; reaction: $p < .05$; compensation: $p < .05$), as well as a significant positive effect on evaluation of redress (avatar: $p < .01$; reaction: $p < .05$; compensation: $p < .05$). Additionally, anthropomorphism and evaluation of redress both have a positive significant influence on the repurchase intention (anthropomorphism: $p < .001$; redress: $p < .001$). By decreasing the mean square (MS) of the main effect, we can observe the mediation effect: for anthropomorphism as a mediator, we can observe a direct only mediation for avatar ($p > .05$) and a complementary mediation for both reaction ($p < .05$) and compensation ($p < .001$) as experimental factors (see Table 2). Consequently, H2a is confirmed since anthropomorphism entirely mediates the effect between avatar and repurchase intention. Moreover, we can confirm H2b and H2c since anthropomorphism mediates the effect between reaction and repurchase intention as well as between compensation and repurchase intention complementarily.

Concerning the evaluation of redress, the main effects of all three experimental factors on the repurchase intention are worsened by the presence of evaluation of redress as a mediator, which, according to Zhao et al. [67], results in a complementary mediation (avatar: $p > .05$; reaction: $p > .05$; compensation $p > .001$). These results present that the repurchase intention can be explained by the complementary mediating influence of evaluation of redress; hence, we also confirm H3a-c. Examining H2d and H3d, we see that the interaction between the three experimental factors on the repurchase intention is mediated neither by anthropomorphism nor evaluation of redress; thus, we reject both hypotheses.

Table 1. Overview Results Main Effects

	F	η2
Avatar → RI	9.098	.023**
Reaction → RI	8.684	.022**
Compensation → RI	16.185	.040***
Avatar * Reaction→ RI	1.227	.003
Avatar * Compensation → RI	2.896	.010
Reaction * Compensation → RI	.365	.001
Avatar * Reaction* Compensation → RI	.017	.000
Avatar → Anthropomorphism	12.312	.031***
Reaction → Anthropomorphism	4.687	.012*
Compensation → Anthropomorphism	4.298	.011*
Avatar → Evaluation of Redress	6.711	.017**
Reaction → Evaluation of Redress	4.488	.011*
Compensation → Evaluation of Redress	4.247	.011*
Note: RI = Repurchase Intention, N = 389, *significant at p < .05, **significant at p < .01, ***significant at p < .001		

Table 2. Overview Results Mediation Effects

Mediation Effects: Experimental Factor; Mediator	F	η2	Decrease of Mean Square
Avatar; Anthropomorphism	3.001	.008	67.40%
Reaction; Anthropomorphism	5.047	.013*	48.67%
Compensation; Anthropomorphism	11.961	.30***	34.85%
Avatar; Evaluation of Redress	4.824	.012*	47.71%

Reaction; Evaluation of Redress	5.339	.014*	46.69%
Compensation; Evaluation of Redress	12.156	.031***	32.34%
Avatar * Reaction; Anthropomorphism	.345	.001	71.88%
Avatar * Compensation; Anthropomorphism	2.362	.006	18.44%
Reaction * Compensation; Anthropomorphism	.297	.001	18.63%
Avatar * Reaction* Compensation; Anthropomorphism	.001	.000	94.12%
Avatar * Reaction; Evaluation of Redress	1.192	.003	2.85%
Avatar * Compensation; Evaluation of Redress	1.210	.003	58.22%
Reaction * Compensation; Evaluation of Redress	.359	.001	1.64%
Avatar * Reaction* Compensation; Evaluation of Redress	.101	.000	-
Note: Dependent Variable = Repurchase Intention, N = 389, *significant at p < .05, **significant at p < .01, ***significant at p < .001			

5. Discussion and Conclusion

The results demonstrate that the choice of the avatar, its reaction and the compensation each play a decisive role in influencing user behavior during a complaint. Based on the results, despite a complaint, users are likely to purchase from retailers again when the avatar employs more empathic reactions, is portrayed as humanlike or when it offers some kind of compensation. Furthermore, the compensation has the predominant effect on the repurchase intention, indicating that offering an amount of money is essential in successful management of the complaint process. This aligns with previous research that illustrates that compensation leads to an increased behavioral intention [60]. The fact that compensation exerts the strongest influence on the repurchase intention compared to other experimental factors is additionally illustrated by the effect strength, known as the partial eta squared ($\eta 2$ = .040). Additionally, the mean values reveal that users are more likely to shop at a retailer again if the avatar presentation is that of a human rather than a robot, regardless of whether the robot is as empathic as and offers the same compensation as the human avatar. This demonstrates that the anthropomorphizing and social presence of the avatar presentation has a decisive role on user behavior, which is confirmed by other studies [41] but is also discussed in more depth in the mediation analysis of this study. Additionally, considering the interaction between the experimental factors, empathy has a greater influence on the repurchase intention than compensation when a human avatar is presented. Therefore, the relevance of the avatar's humanity is decisive for users, as they are seeking social presence and behavior in the avatar due to its visual human presentation [68].

Moreover, the results demonstrate that the representation of the avatar has a stronger effect on anthropomorphism than the reaction or compensation. This indicates that, although empathizing and offering a voucher is important, the human likeness is evaluated depending on the appearance of the chatbot. Again, the effect of the avatar is stronger than the effect of its reaction and the effect of compensation on evaluation of redress, meaning that the representation of the chatbot is more important for users' feelings about how they were treated than empathic words or even the offering of a voucher. However, previous research portrays that users expect an immediately accessible and responsive redress procedure from retailers [61] and that overcompensation and an apology can repair user trust in the retailer in the event of an abuse of trust [9]. Thus, although the voucher does not seem to be the most decisive factor in evaluation of redress, offering redress, especially if presenting the avatar as a robot cannot be avoided (e.g., if the company mascot is to be used as an avatar), may increase the user intention to return to this retailer, since, as seen in the results above; the robot presentation generally exerts a worse influence on the repurchase intention compared to the humanlike avatar. Additionally, the mean values of a human avatar on evaluation of redress are higher (M = 5.20, SD = 1.27) than a robot avatar on evaluation of redress (M = 4.88, SD = 1.20), which again represents the higher influence of a humanlike avatar ($t = 2.59$, $p < .010$). Therefore, users place more emphasis on who offers the redress than what kind of redress is offered. These human visual cues may be preferred by users, as they suggest a social presence of the chatbot [38], and make them more similar to users as social beings [68].

Additionally, the direct effects are mediated by the perception of anthropomorphism and evaluation of redress. For example, the perception of the avatar is mediated entirely by anthropomorphism, while it only causes complementary mediations for reaction and compensation as experimental factors. This indicates that the repurchase intention depends on how human and alive the avatar seems, regardless of whether it is a human or a robot. Therefore, anthropomorphism mediates the compensation's influence on the

repurchase intention more significantly than the avatar's presentation influences the repurchase intention, indicating that the repurchase intention depends on how humanlike the users perceive the offered compensation.

Similar results can be observed for redress as a mediator: the influence of the choice of the avatar as well as that of the reaction and the compensation on the repurchase intention is mediated by the influence of evaluation of redress in a complementary mediation, but their direct impact on the repurchase intention does not disappear completely; rather, it continues to indicate their significance. Therefore, we observe that the repurchase intention is increased by users' evaluation of redress when an empathic reaction or compensation is offered; however, choosing an avatar that is perceived as alive and vivid, regardless of whether it appears as a human or a robot, is decisive for forming the behavioral intention.

For companies, this is a first indication of how to create a chatbot to provide a successful customers after-sales service, because, in the worst case, a bad service experience is connected with the most radical form of reaction: to stop future purchases and move to another company [69]. Therefore, the behavior of the company is decisive for the user's perception. In this case, the behavior of the chatbot is a representation of a human employee. The difficulty is that the chat-text is typically scripted, but companies are working on the recognition of free texts and their understanding in order create a natural conversation [7]. Since the results present that anthropomorphism strengthens users' repurchase intentions, embedding humanlike behavior is essential. One explanation is that people are searching for social contact and are accustomed to feeling a social presence when they are communicating, which is why they prefer anthropomorphic elements in chatbots. Consequently, sharing the same space to feel connected also occurs through digital counterparts, and companies have the opportunity to increase the feeling of a socially present character by adding humanlike traits.

As chatbot technologies have become an integral part of everyday user life, evaluation of the chatbot performance is critical to achieving and maintaining a competitive advantage [70]. Aligning with Davidow [8], we can confirm that successful complaint handling with a chatbot leads to a more positive behavioral intention and thus a positive effect on the relationship between customer and company. Past research has illustrated that empathy is a decisive factor in service marketing, especially in the online environment [21], and our findings demonstrate that this holds true during a complaint process as well. Hence, this indicates both that users want a friendly interaction with the chatbot in the service area [19] and the importance of the creation of a humanlike chatbot.

However, it would be interesting to investigate if the degree of the compensation depends on the appearance of the avatar. Perhaps a robot-like avatar is more forgivable than a human-like avatar because users know of their lack of intelligence. For instance, some studies reveal that it is more important to present the combination of an admission of guilt and additionally to offer money during an online complaint without an avatar [71]. Consequently, it would be interesting to transfer this to a complaint process with chatbot avatars and investigate whether an admission of guilt also works with a robot-like chatbot appearance since feeling guilty is attributed to humans rather than to robots.

Although this research has produced interesting results, there are also limitation since the study is based on a limited German sample and is scenario based. Therefore, we recommend investigating whether the cultural background has an impact on the perception of the avatar and its behavior; additionally, we recommend replicating the study in an actual field experiment.

6. References

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