Implications of Service Provider Flexibility on Attitudinal Loyalty

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Abstract

This research analyzes language features associated with flexibility and their effect on attitudinal loyalty by using text mining techniques on a dataset of about 5k chat conversations. Two positive constructs (confirmation, owning statements) and two negative constructs (argumentativeness, anxiety) are measured through a top-down method using self-made dictionaries. Confirmative words have a positive effect on attitudinal loyalty, while owning statements have a negative effect on attitudinal loyalty. Moreover, handovers by a chatbot negatively moderates the effect between service providers flexibility and attitudinal loyalty. A post hoc study identifies the most popular topics between service providers and customer, suggesting that the former should use owning statements with caution when talking about topics such as personal information and technical issues.

Keywords: Attitudinal loyalty, chatbots, flexibility, regression, text mining

Chat-based customer service (e.g. webchat, social messaging apps, chatbots) and Artificial Intelligence (AI) significantly enables automation and self-service capabilities (Fach, Tranker and Schüssler, 2019; Darwish, 2020). However, companies must be careful in not sacrificing relationship-building for resolution speed (Pailhes, 2022; Genesys, 2021). In fact, one of the main challenges in today's tech-driven service world is to elevate the human experience during customer service conversations (Pailhes, 2022; Tilburg et al. 2020). Thus, it is more important than ever for service providers to be aware of how they exchange messages on chat-based service platforms such that the human experience is ensured for their customers.

Past research on language has analyzed the use of apology (Davidow, 2003), linguistic concreteness (Packard and Berger, 2021), personal pronouns (Packard, Moore and McFerran, 2018), empathy (McLean, et al., 2020) and flattery (Chan and Sengupta, 2010). We turn to Relational Communication Theory (RCT), which refers to the control or dominance of message exchange by which interactors reciprocally define the nature of their relative position or dominance in the interaction (Rogers and Farace 1975). Within this theoretical framework, we focus on the degree of *flexibility*, that is, how eager an interactor is to loosen his/her position or dominance in a message exchange. Using text mining techniques, we analyze four flexibility-related constructs (confirmation, owning statements, argumentativeness, and anxiety) and the effect on customer attitudinal loyalty in chat-based service platforms.

THEORETICAL BACKGROUND AND HYPOTHESES

RCT and Flexibility

RCT views relationships as being enacted and formed during the communication process between members (Rogers, 2008). Showcasing flexibility is an essential component of interpersonal communication which might affect the relational outcome (Martin and Rubin, 1995). Flexible patterns, that is, where the members are more positive, confirmative, and adaptable to change in relational dynamics situations and contexts, will result into positive and viable interpersonal relationships (Rogers, 2008). Conversely, redundant, argumentative, and rigid patterns of communication will contribute to negative relational outcomes.

Confirmation. Defined, across various contexts, as the interaction process where people are made to feel significant and valuable (Johnson and LaBelle, 2016). Sieburg (1973) described confirmation as the propensity to engage in the relationship, through validation of others' experiences. Welchlin (2017) argues that confirmation communication can be divided into three main categories: showing recognition, expressing agreement, and acknowledging the other person's feelings and thoughts. Expressing agreement, which is a confirming message, can be done in various ways, such as "You're right", "You're correct", "Understand" and "Agree" (Welchlin, 2017). Thus, confirmation can strengthen

interpersonal relationships and positively affect the relational outcome. Accordingly, we predict that:

> **H1:** Greater use of confirmative words from the service provider will have a positive impact on attitudinal loyalty.

Owning statements. Also known as "owned messages", "I-messages", "owning thoughts and feelings" and "speaking for self", is a skill that involves the use of first-person pronouns to acknowledge personal responsibility and subjectivity (Proctor II and Wilcox, 1993). A very flexible person is keen to using a high number of owning statements (Martin and Rubin 1994). Owned messages are generally regarded as competent in interpersonal communication since they help acknowledge personal responsibility and thus, enhance interpersonal communication. We thus predict the following:

> **H2:** Greater use of owning statements from the service provider will have a positive impact on attitudinal loyalty.

Argumentativeness. An argument can have two goals, to convince someone of a certain point of view or to come to a reasonable agreement about a disagreement (Dizier, 2020). While some studies have found a positive effect of polite argumentation (e.g. way of learning or solving problems (Okumus and Unal, 2012), others have found that contentious communication style (e.g. frequently involved in arguments or disputes with others) has a negative impact on customer-oriented service employee (Kang and Hyun, 2011). Johnson, Kelley, Liu and Averbeck (2012) found that beliefs about interpersonal arguments predicted stress-related symptoms after the argument was over. Disagreement that is closely related to oneself may also threaten closeness between the members involved (JananJohnson, 2014). Furthermore, someone who is highly argumentative is seen as more rigid, leading to more negative relational outcomes. Accordingly, we hypothesize that:

> **H3:** Greater use of argumentative words from the service provider will have a negative impact on attitudinal loyalty.

Anxiety. Anxiety is an emotion which is characterized by an unpleasant state of inner turmoil and includes feelings of dread over anticipated events (Davison 2008). Past research shows that low levels of anxiety (i.e., relaxation) enhance interpersonal communication (Martin and Rubin, 1994). Thus, a higher degree of anxiety can be expected to reduce interpersonal communication. Accordingly, we hypothesize that:

> **H4**: Greater use of anxiety words from the service provider will have a negative impact on attitudinal loyalty.

Chatbots handover. Chatbots that are working optimally have a positive effect on user compliance, customer satisfaction, and cost efficacy (Adamopoulou and Moussiades, 2020; Przegalinska et al., 2019). Conversely, chatbots that do not deliver on customer expectations, cannot solve the request, or annoy the customers because of loops,

contribute to a negative customer experience (Huang and Philp, 2020; Castillo et al., 2021). In case of a handover, it is likely that the customer was not able to solve the problem at hand, requiring to escalate it to a real human. About 20% of all inquiries handled by chatbots lead to handovers to a human agent (Mygland and Schibbye, 2021). We predict that in these cases the effect of flexibility on attitudinal loyalty is weakened. This is because there was an implicit failure in the recovery attempt by the chatbot, and a customer will already be expecting more flexibility from the employee. In these situations, flexibility in language will not be any more a differentiator, but a baseline to meet customer expectations. Thus, we hypothesize that:

> **H_5:** When the conversation starts out with a chatbot (rather than human), the positive (vs. negative) effect of flexibility on attitudinal loyalty is weakened (vs. strengthened).

METHOD

Data description. The data was gathered from January 2021 to December 2021 from a North-European Telecommunication company. The dataset consisted of 11.132 chat conversations, where 5.262 started with a human agent (HumanDirect) and 5.870 started with a chatbot before handed over to a human agent (Handover). After cleaning the data (e.g., removing incomplete conversations), we ended up with 5.006 chat conversations handled only by a human (we called these HumanDirect) and 593 conversations that were handed from a chatbot to a human (we called these Handover).

Measurement development. In line with previous research attitudinal loyalty was measured with the net promotor score (Kumar and Shah 2004). At the end of each conversation, a survey was sent out to the customer, who rated their willingness to recommend the service using the Net-Promoter-Score (NPS, where 0-6 = detractors, 7-8 = passives, and 9-10 = promoters). All independent variables are measured using a "top-down" approach (Villarroel Ordenes and Zhang, 2019) with self-made dictionaries. Because of time limitations and the fact that annotation takes much time (Dizier, 2020), two Linguistic Inquiry and Word Count (LIWC, 2015; LIWC, 2022) dictionaries and three research articles (Welchlin, 2017; Johnson's 1946; Dizier, 2020) were used to create self-made dictionaries. The *confirmation* construct is based on words that make people feel significant and valuable (Johnson and LaBelle, 2016). Expressing agreement, such as "You're correct", "understand", "agree", "you're right", or "right" is seen as confirming messages therefore included in this dictionary. After reading through all LIWC dictionaries "Emo_pos" stood out. "Emo_pos" stands for positive emotions and according to related literature, this is closely related to confirming words (Welchlin, 2017; Johnson and LaBelle, 2016). The final output consisted of 58 confirmative words. The *owning statements* is mostly made up of first-person pronouns, also known as "I-messages", "owned messages" and "speaking for self". However, Johnson (1946) argued that we also

expressed ourselves by using words such as “apparently”, “it seems to be” and “as I see it”, thus “apparently”, “it seems” and “I see” are included in the dictionary. The LIWC dictionary “I” was used to cover first-person pronouns, in a total of 46 words. Words from the “We” dictionary were also included, except words related to children like “our child” and “our kid”. The final output consisted of 69 words. The *argumentativeness* construct is mostly based on Dizier’s (2020) work who presents an overview of relevant words that could indicate that a form of argument takes place. In addition to this, the “Certitude” dictionary from LIWC (2022) was included, since certitude represents something that you are certain about or convicting that something is the case. The final dictionary consisted of 141 words. The *anxiety* construct is measured because it is the opposite of relaxation (i.e., reverse coded of relaxation). According to the definition of relaxation it is the absence of psychological arousal and anxiety (Titlebaum, 1998). Relaxation is a construct found to increase interpersonal communication (Martin and Rubin, 1994); thus, a higher degree of anxiety should reduce relaxation. We used the anxiety dictionary, called “Emo_anx” (LIWC, 2022). The final dictionary consisted of 87 words.

Modelling

Main study. All text-based variables were measured as word intensities (i.e., number of words in a specific dictionary divided by the total number of words in the document). The data was analyzed using a OLS regression model. Multicollinearity was not detected; thus, all independent variables were included.

Moderation. Dummy variables were created where the HumanDirect data got the value (0), and the Handover data got the value one (1). Data was normalized to allow for comparison among variables.

Tag clouds. To get a better visualization of the most used words in each dictionary, a tag cloud analysis on both datasets (HumanDirect / Handover) was performed. Through preprocessing, using Kuhlen Stemmer, case converting, and Bag of words, TF and IDF were computed to visualize each of the constructs.

Results

Table 1 (see Appendix) shows the results of regression analysis performed with our flexibility constructs on customer’s net promoter score.

Confirmative words have a positive, significant impact on attitudinal loyalty (β=0.24, p<.001), which confirms H1. Unexpectedly, we found that owning statements has a significant negative impact on attitudinal loyalty (β= -0.26, p<.001). Argumentativeness and Anxiety do not influence attitudinal loyalty ($\beta_{argument}$=0.01, p=.49; $\beta_{anxiety}$=0.01, p=.39). We also included the number of terms as a control variable. Number of terms has a significant negative impact (β= -0.07, p<.001) which indicates that the longer the conversation is, the more displeased the customer gets. Bot has a non-significant impact on attitudinal loyalty (β = -0.02, p=.16). We found a significant and negative interaction

effect between bot and argumentative words (β = -0.04, $p<0.01$), confirming that the negative effect of argumentative words is strengthened further when the conversation is started by a chatbot, thus supporting H5. Finally, we found a significant and negative interaction effect between bot and owning words (β = -0.04, $p<0.01$), confirming that the negative effect of owning words is strengthened further when the conversation is started by a chatbot.

Tag clouds. Results from the tag clouds show little difference between words used in *HumanDirect* and *Handover* conversations. Only Anxiety differs the most because of the lack of words in the Handover sample, but this could be due to the smaller sample relative to HumanDirect. The topmost used words are equal in both datasets when regarding the other constructs.

DISCUSSION

Recent research on service recovery highlights the need to further study customer frontline interactions in chat-based settings (Packard and Berger 2021; Grewal et al. 2021; Herhausen et al. 2022). A common premise is that the language used by frontlines (humans or chatbots) in these text-based interactions can affect consumer perceptions of gratitude and customer satisfaction. However, the literature still offers a limited range of human traits expressed through language such as concreteness (Packard and Berger 2021), empathy (Herhausen et al. 2022), and problem-solving language (Marinova, Singh, and Singh 2020). This research focuses on flexibility as a language feature that helps in handling customer problems. Drawing from RCT and delving into the features of flexibility, we identify four key constructs that can signal flexibility (or lack if it) in language: confirmation, owning statements, argumentativeness and anxiety. We find that frontlines use of confirmation language improves customer attitudinal loyalty after the interaction. Conversely, the use of owning statements has a negative effect in attitudinal loyalty. This effect is strengthened when a bot starts handling the conversation. Furthermore, the use of more argumentative language in chats initiated by a bot have a negative effect on attitudinal loyalty. Our findings contribute to digital communication research in customer service settings by measuring and empirically validating the effect of flexibility related language cues on consumer attitudinal outcomes.

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Appendix

Table 1: OLS regression results

Variable	Coeff.	Std. Err.
Confirmation	0.2403***	0.0134
Owning statements	-0.2688***	0.0146
Argumentativeness	0.0093	0.0135
Anxiety	0.0121	0.0141
Number of terms	-0.0694***	0.0142
Bot	-0.0168	0.0514
Bot*Owning	-0.0362***	0.0364
Bot*Confirmative	0.0115	0.0208
Bot*Argumentativeness	-0.0410*	0.0215
Bot*Anxiety	-0.0028	0.0144
Intercept	0.0001	0.0123
Adjusted R Squared	0.147	
Sample (# Chat conversations)	5,598	