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Understanding Consumer Conversations

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Understanding Consumer Conversations

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SESSION OVERVIEW

What the world needs now… is a little more conversational understanding. Interpersonal communication is a fundamental part of everyday life. People share word of mouth, customers talk to salespeople, and managers discuss market strategies.

But while a great deal of recent work in marketing has begun to examine why people talk and share, there's been less attention to the broader *conversations* in which interpersonal communication is situated. Why do some conversations last longer than others? In this age of polarization, how can people improve engagement with opposing views? When in conversation are certain linguistic feature more effective? And can conversations help encourage sustainable behavior?

This session addresses these and other questions as it sheds light on the drivers and consequences of consumer conversations. It examines language produced in both experiments and the field, applying text analysis, machine learning, and other techniques to deepen understanding around these important phenomena.

First, **Boghrati and Berger** examine why some consumer conversations last longer than others. Using deep learning to analyze over 26,000 turns in oral conversations reveals the importance of questions and linguistic concreteness in keeping conversations going. That said, not all questions have the same impact, and they distinguish between differential effects of broad and narrow questions.

Second, **Yeomans, Minson, Collins, and Gino** explore how to improve engagement with opposing views. They use machine learning to analyze the language of over 5,000 conversation participants to identify language that communicates thoughtful engagement during disagreement, and show that such language makes writers more persuasive, builds reader trust, and prevents conflict escalation among Wikipedia editors.

Third, **Donnelly, Hurst and Sintov** examine whether conversations can encourage commitment to sustainability. The demonstrate that participants used less electricity, committed to more sustainable foods, and shifted their attitudes more towards a conversational partner's when discussion time was embedded in dyadic decision-making tasks.

Fourth, **Packard, Li, and Berger** study *when* within a conversation particular language features are more impactful. Examining conversational dynamics in over 23,000 turns in call centre conversations from two different firms reveals that using both affective and competent speaking styles can impact customer satisfaction and purchases if one identifies *when* during the interaction each style matters. Results are also replicated in an experiment. The method is further extended to shed light on *when* within conversations using first person singular pronouns and asking questions matters.

Taken together, these papers highlight the causes and consequences of conversations for consumers, as well as employees and organizations. The session should attract a wide audience of researchers with interests in social influence, sustainability, and language across contexts such as word of mouth, negotiation, and customer service. It should also have appeal to those interested in learning about text analysis and machine learning applications. We look forward to a stimulating conversation about conversation among the attendees and presenters.

What Drives Longer Word-of-Mouth Conversations?

EXTENDED ABSTRACT

Consumers have dozens of conversations each day and these conversations have a huge impact on consumer behavior. While there has been great interest in the consequences of everyday consumer conversation, there has been less attention to its drivers. Why do some conversations last longer than others?

Longer conversations can provide more information, reasons, or details, all of which should increase word of mouth's impact (Shafir et al., 1993). A great deal of research demonstrates that longer reviews are more helpful (Liu & Park, 2015; Mudambi & Schuff, 2010; Pan & Zhang, 2011), more persuasive (Zhang et al., 2010), and boost purchase (Ghose et al., 2012; Kim et al., 2018). But why do some consumer conversations, or topics, persist while other don't? In this research, we focus on two main drivers of conversations, questions and concreteness.

Questions. One might imagine that any question encourages conversation. A key function of questions is to solicit information and encourage someone to respond (Dillon, 1982; 1988). Consequently, compared to just making statements, questions can help move a conversation forward.

We suggest that whether or not questions encourage topic persistence depends on the question type (i.e., breadth).

Prior work (Miles, 2013) suggests that questions can be arrayed in terms of their breadth. Broad, or more open questions, broadly seek information and don't constrain the scope of appropriate response. Narrow, or more closed questions, however, tend to suggest a narrower range of responses.

We suggest while narrow questions should encourage topic persistence, broad questions may not have the same effect.

Narrow questions should encourage further progress down a particular direction. Further, to the degree that these questions follow-up an existing line of thought, they suggest that the questioner is interested in that line of thought, and would be happy to continue discussing it.

Broad questions, however, should be less likely to have the same effect. While broad questions give conversation partners more

things to talk about, by calling for more complex or exploratory answers, they also open up other directions for discussion.

Concreteness. In addition to question breadth, we also examine linguistic concreteness. Concrete languages arises from or appeals to immediate sensory experience, while abstract language refers to intangible qualities and concepts (Hansen & Wänke, 2010).

Building on past research, we suggest that concrete language should encourage topic persistence. Consistent with the fact that they tend to refer to real or perceptible entities, concrete things are easier to visualize and require less cognitive resources to process (Friederici et al., 2000). This vividness or ease of imagery, in turn, can impact things like interest and comprehension.

Consequently, we suggest that linguistic concreteness should encourage discussion. Concrete language should facilitate imagery, encourage interest, and make it easier for people to understand the conversation, all of which should encourage continued conversation.

Data. Participants (N=222) completed a conversation study in the laboratory. They were given 10 minutes to talk about whatever they wanted. A professional transcription service converted the recordings to text.

Each ten-minute conversation was then broken down into pieces based on the topic discussed. To break conversations down into these different topics, two research assistants went through each transcribed conversation and marked topic changes. Any instances where participants talked about the conversation itself were removed, resulting in a dataset of 745 conversation topics with over 26,000 conversational turns.

Method. We used NLP to extract key features (i.e., question breadth, linguistic concreteness, and control variables) from each conversational turn.

To determine which turns contained a question, building on prior work (Stolcke et al., 2000) we train a deep learning model. This approach was also used to extract other dialogue acts (e.g., statements) as control variables.

For classification, we use Robustly Optimized Bidirectional Encoder Representation for Transformers (RoBERTa, Liu et al., 2019). We add a neural layer on top of the base model to fine-tune the pre-trained model for our classification task.

Next we identified broad and narrow questions. Research assistants coded each question in the dataset as broad or narrow. We then built a deep learning classifier for question breadth using our manually coded data for future research.

Linguistic concreteness was captured using measures from prior work. We use a boot-strapped extension of the MRC Psycholinguistic Database (Paetzold & Specia, 2016). Averaging concreteness scores across the words in each turn provided a score for that turn.

Given our interest in predicting an event (i.e., topic death) based on a number of time-varying explanatory variables (e.g., linguistic features for a given turn), hazard modeling seems the most appropriate approach. Hazard models relate the time that passes before an event occurs to variables that may be associated with that quantity of time (Allison, 1982).

Results. Topics lasted longer when conversation partners asked questions, but the strength of the effect depended on the type of questions. Topics lasted longer when people asked narrow questions (= -1.23, $p < .001$), and the effect of narrow questions was larger than the effect for broad questions (= 9.78, $p < .01$). This difference consistently persists across all the robustness tests. While broad questions were linked to longer conversations in the most basic specification (= -.44, $p < .05$), this relationship became non-significant once more controls were added.

Topics also lasted longer when people used more concrete language (= -.15, $p < .001$).

Results persist when controlling for factors such as interest, linguistic style matching, other dialogue acts, word count, LIWC content categories, and a variety of modeling approaches.

In conclusion, while a great deal of research has studied the consequences of word of mouth, the drivers of interpersonal communication are less studied. Analyzing hundreds of consumer conversations suggests that even beyond topic interest, linguistic features may drive topic persistence. We demonstrate the important role of question type. Topics last longer when people asked narrow questions, but broad questions did not have the same positive effect. Topics also lasted longer when people spoke more concretely. Hopefully this investigation will encourage more research into this interesting and important topic.

Conversational Receptiveness: Improving Engagement with Opposing Views

EXTENDED ABSTRACT

Disagreement is a fundamental feature of social life, in civic spaces, in professional organizations, and in personal relationships at home. Opposing viewpoints are often inevitable in the pursuit of more important organizational and interpersonal goals. Engagement with diverse perspectives can also help us increase the accuracy of our own belief. However, disagreement can also give rise to biased processing, negative inferences, and conflict. While engagement with opposing viewpoints can be beneficial, its effects will be tempered by the contents of those interactions (see Bail et al., 2019; Paluck, Green & Green, 2018). Here we examine whether "conversational receptiveness" can foster co-operative goals during disagreement and prevent conversational conflict spirals.

In this research we conduct four studies, and all data, analysis code, stimuli, and preregistrations from each study are available (anonymously) at https://bit.ly/2QwyiuL. In Study 1 we instructed 1,102 participants to write responses to statements written by people with whom they disagree, on one of two controversial issues. A separate group of 1,322 participants read responses from people with opposing viewpoints, and evaluated how receptive the writer had been. We parsed the text of the responses into features from the politeness R package (Yeomans, Kantor & Tingley, 2018), and we trained a supervised machine learning algorithm (Friedman, Hastie & Tibshirani, 2010) to build a receptiveness detection model that was generalizable (for datasets from other domains) and interpretable (to design interventions). This model was just as accurate (pairwise accuracy = 66.8%; p<.001), as any one human rater (65.2%; p<.001). The model focuses on the structural, domain-general elements of the language (hedges, acknowledgment, negation, reasoning), and the model's accuracy was unaffected when it was trained and tested on different topics (65.2%; p<.001). In Studies 2 & 3, we apply the model in conversations from organizational contexts where disagreement naturally arises.

In Study 2, we collected conversations between 238 senior local government officials in an executive education program, who were paired up to discuss controversial policy topics (using a negative assortative matching algorithm to ensure they all disagreed with their partner). After the conversation, participants rated their own and their partner's receptiveness. Partner-rated receptiveness was associated with a range of positive interpersonal benefits, like trust in judgment and willingness to work together (r=.289, p<.001). Furthermore, the receptiveness model from Study 1 predicted these positive interpersonal outcomes (r=.232, p<.001), and also showed that partners' re-

ceptiveness converge over time, indicating that one of the benefits of receptiveness is that it is returned in kind (r=.335, p<.001). However, people could not predict how receptive their partner would rate them (r=.048, ns). Our language model held their own speech to a different standard than their partner's speech, focusing more on formality (titles, gratitude, etc.) than demonstrations of listening.

In Study 3 we extend this result to conversations within globally-distributed organizations where disagreement naturally arises, and where people are free talk about many different topics, with many different people. In Study 3A we examine receptiveness among 3,303 students in policy-themed massive open online courses at HarvardX. We collect ideology measures and compare them to the contents of the class discussion forums. We find that on average, students were less receptive to students they disagreed with (r= .099, p < .05). However, the receptiveness of students' posts predicted the receptiveness of the replies they received from other students who disagreed with them (r= .226; p<.001). This suggests that receptiveness is often, and individual choices to be more receptive can foster a more receptive dialogue going forward. In Study 3B, we measure receptiveness during the editorial process of correcting Wikipedia articles. We borrowed a dataset of talk page threads, in which 585 threads ending in personal attacks were each matched to similar thread without an attack (Zhang et al., 2018). We found that editors who were less receptive were more likely to be attacked themselves (59.9%; p<.001).

Study 4 was similar to Study 1 except that some writers were first taught a "recipe for receptiveness", which was developed as a 100-word summary of Figure 1 that can be cheaply deployed as a nudge during conversation. Opponents who read the responses from writer who saw the recipe thought they were more trustworthy and persuasive than writers who responded naturally. However writers did not always predict this effect, and expressed surprising hesitation to be receptive in the future.

Overall, our results suggest that receptiveness is measurable and has meaningful interpersonal consequences, but can be underutilized in part because speakers can misjudge their own receptiveness. Our results also highlight an under-discussed element of recent efforts to improve civic discourse: The linguistic behavior that people exhibit in conversation can powerfully affect their partners' perceptions, engagement, and willingness to cooperate.

The Influence of Environmentally-Focused Conversations on Pro-Environmental Behavior

EXTENDED ABSTRACT

To address global climate change, action to promote more sustainable use of natural resources is required. Most studies evaluating consumer decision-making rely on paradigms that collect data from a single participant, or examine household-level outcomes. These approaches fail to capture the fact that many consumption decisions are not made independently, but rather in conjunction with others. As a result, these decisions may often involve conversations between two or more actors, during which relevant preferences and beliefs are exchanged and joint commitments are created (Sintov et al., 2019).

Prior work has demonstrated that conversations between two or more people can influence consumer knowledge and beliefs. For example, interpersonal discussions can influence climate change beliefs (Goldberg et al., 2019), and a brief conversation with a political canvasser improved attitudes toward transgender people and intentions of supporting policies in favor of these individuals (Broockman & Kalla, 2016). However, the influence of conversation on behavior is less clear. Two studies evaluating self-reported discussions and energy conservation intentions speak to the promise of conversations in influencing behavior (Sintov et al., 2019; Southwell & Murphy, 2014), but experimental evidence is needed.

In this research we evaluate how conversation content and conversation partners' stances influence subsequent behavior in peer-to-peer sustainability conversations. We achieve this through a set of three experiments with peer dyads that engaged in brief discussions and assessed subsequent behavioral actions supporting environmental policy as well as energy consumption.

Study 1 was a field experiment evaluating the effectiveness of a sustainability-focused conversation on electricity consumption amongst roommate pairs in a college dormitory (N=240). The college dormitory had a sustainability-living theme and asked all residents to sign an agreement to conserve resources (including energy and water) and to minimize waste during the semester. After residents signed their agreement, they were asked to have a 10-minute conversation with their roommate and to complete a roommate agreement which required short responses to conversation prompts. In the control condition, roommates conversed and made agreements to quiet hours, sharing of possessions, guests, and cleaning. In the treatment condition, participants were also prompted to converse and make agreements about their sustainability commitment: to conserve electricity, water and reduce waste.

The study team compared average daily electricity use between the treatment and control conditions for the Fall 2019 semester. A significant effect of the intervention was observed such that the treatment condition consumed less energy than control (b=-16.23, SE=1.89, p<.001. We found a positive and significant interaction between intervention and day of treatment (b=0.54, SE=.06, p<.001), suggesting that the effect of the intervention weakened over time. Overall, our effects suggest that a 10-minute conversation that included prompts to discuss energy conservation followed by a commitment resulted in a 22% decrease in energy consumption over the Fall 2019 semester. Our effects weakened after students went home for the Thanksgiving break, suggesting the need for reinforcement after prolonged absence to allow roommate pairs to recommit to resource conservation. Similar effects were observed for water consumption.

Study 2 sought to understand the cumulative benefit of a conversation paired with a commitment by utilizing a between-subjects experimental design. Specifically, participants in a lab setting (N=568) were randomly assigned to a conversation-only, commitment-only, or conversation plus commitment condition. We posited that a commitment becomes more impactful following a conversation on the issue at hand. Conversations allow for learning and exchange of pertinent beliefs, thoughts and ideas (Huang et al., 2017), and can serve as an opportunity for conversation partners to develop rapport, trust and psychological safety (Edmondson, 1999).

Participants were informed they would interact with another participant and, following the interaction, they would have the opportunity to click their mouse to support a plant-based foods initiative. Participants were told that if the mouse was clicked collectively 400 times between themselves and their conversation partner a $1 donation would be made to the initiative. Participants were then instructed to have a conversation that was video recorded and the structure of the interaction was varied as a function of treatment. Participants in the conversation-only condition were instructed to spend 2.5 minutes discussing their stances on whether the university should increase plant-based food offerings in on-campus dining areas. Participants in the commitment-only condition were instructed to discuss actor biographies for 2 minutes (as a filler task) and then spend 30 second forming a commitment as to how much effort they

would both contribute to support the plant-based food initiative. Participants in the conversation and commitment condition discussed their stances on plant-based foods for 2 minutes, followed by a 30 second commitment of how much effort they would contribute to the clicking task.

There was a significant effect of condition on clicking ($F(2,281)=5.62$, $p=.004$) such that participants in the conversation and commitment condition clicked significantly more than participants in the conversation-only condition and the commitment-only condition. There were no differences between the conversation-only and commitment-only conditions ($p=.27$). Participants rated policy-relevant conversations as more psychologically safe than conversations about celebrities, and reported greater collaboration in forming a commitment following conversations about the policy. These differences mediated the difference in clicking between the conditions.

In Study 3, participants ($N=302$) had a conversation about plant-based foods with a confederate that either presented three arguments in favor of plant-based foods (supportive of policy) or 3 arguments against plant-based foods (against the policy). We also assessed participants support for the policy before the conversation to assess how policy support was influenced following a conversation with a peer who was either supportive or against the policy. Following the conversation, participants had the same opportunity to click for the policy as Study 2.

Regressing clicking on confederate stance, participant stance, and an interaction of these variables revealed a significant interaction ($b=-.12$, $p=.02$), demonstrating that confederate support (vs. opposition) increased participant clicking among participants who were initially unsupportive of the policy, but did not influence clicking of participants who were initially supportive. These results suggest that conversations can be differently influential depending on pre-support, and suggest that conversations can be more influential to individuals less supportive of environmental policies.

In sum, this research suggests that conversations can be quite effective at motivating increased effort toward sustainable behavior and that the structure and content of dyadic dialogue can influence behavior.

Discovering *When* Language Matters in Service Conversations

EXTENDED ABSTRACT

Consumer conversations are dynamic. People chat with each other online (discussion boards, texting, social media) and debate word of mouth opinions in the "real world." Salespeople try to persuade potential buyers who sometimes push back, while call centre workers talk with customers to help resolve their issues. These important consumer interactions are not monologues, but dynamic dialogues between people.

While conversations are a central feature of consumer life, they can be remarkably difficult to analyze. They entail a messy series of conversational turns with dramatic variation in content and importance. These challenges may be why most prior consumer or marketing language research examines texts or speech acts as singular, static events (e.g., Kronrod et al. 2011; Packard and Berger 2020; Packard, Moore and McFerran 2018).

But a more granular view may be useful. Clearly some parts of conversations may be more important than others, but which parts might those be, and how can researchers identify them? We introduce a novel method allowing researchers to not only examine *what* language matters, but *when* it matters. Specifically, when different linguistic features may play a larger role in a conversation's success.

To demonstrate the approach, we explore the two most important dimensions of person perception—warmth and competence (Abele and Wojciszke 2007; Fiske, Cuddy and Glick 2007). It's difficult to seem both affective (warm) and cognitive (competent). Trying to be more emotionally-concerned impedes perceptions of competence, while acting in a more rational, cognitively-oriented manner makes people seem less warm (the warmth / competence trade off; Godfrey, Jones and Lord 1986; Holoien and Fiske 2013; Wang et al. 2019). As a result, research in customer service contexts suggests employees should use competence-related language, while warm language should be avoided (e.g., Marinova et al. 2018).

Rather than being either competent or warm, we suggest that a better solution may be to think about particular times within customer interactions when each is beneficial. Instead of diving straight into finding a solution, we suggest that affective language may be important at a conversation's beginning. When employees and customers interact for the first time, such as in retail or call center interactions where they usually don't know each other, affective language may help build situated rapport (DeWitt and Brady 2003; Gremler and Gwimmer 2000). But being warm will only go so far. Eventually the employee must address the customer's needs. Here, competence should be important, so shifting to a more analytic, cognitive style should be valuable. Finally, given the work on recency or end effects (Greene 1986), closing with affective language may be key to leaving the customer feeling positive. Our approach uses dynamic modeling and an experiment to test these possibilities.

Data. We obtained nearly 20 hours of audio recordings of 200 customer service calls from a large American retailer. As a dependent measure, the firm provided their end-of-call customer satisfaction measure (1 = not at all helpful, 4 = very helpful). The recordings were transcribed to text. Each conversational turn was treated as a separate record (e.g., turn 1 (agent): "How can I help you?", turn 2 (customer): "I can't find (…)"), resulting in 12,410 turns for analysis.

For our independent measures, we captured affective versus cognitive language using validated linguistic dictionaries (affective processes, cognitive processes; LIWC; Pennebaker et al. 2015) for both the employee and customer previously used as measures of linguistic warmth and competence (Decter-Frain and Frimer, 2016; Berry et al. 1997). Results are also robust to alternative dictionaries (Marinova et al. 2018). We include over 50 controls including customer and employee attributes (e.g., gender, lifetime expenditures, tenure), customer language, and conversation features (e.g., issue, severity, linguistic synchronicity).

Method. We extend methods from functional data analysis (FDA; Ramsay and Silverman 2007) and machine learning (Yang and Zou 2015; Kong et al. 2016) to address the challenges of analyzing conversational language. For any conversation feature(s), this method produces sensitivity (beta) curves that can deviate either positively or negatively from non-significance (zero line) in relation to the outcome of interest.

Results. Results support our theorizing. The importance of cognitive language is limited to the middle of the conversation, as indicated by the area above the zero line and below the 95% confidence interval in Figure 1, panel b. That said, as shown by the negative relationship of cognitive language with customer satisfaction at the beginning of the call, employees who try to quickly and competently solve the customer's problem—see significantly negative customer satisfaction (area below the zero line). Instead, as shown in Figure 1 (panel a), those who use more affective language at the beginning and end of the call see higher customer satisfaction. Using purchases (order count) in the 30 days after the interaction as the dependent measures produces the same results.

Notably, the average employee's use of both affective and cognitive language does not follow the optimal functional forms. Instead, affective language is least used at the start of the call, when it is particularly important, while cognitive language is near its lowest point between 12.5% and 40% into the conversation, which our method reveals is when it offers its most positive impact on customer satisfaction.

These results are replicated in a separate field data set of 204 calls (11,548 turns) from an airline call centre, and in a causal test that experimentally manipulates conversational language.

Discussion. This research begins to shed light on a richer theory of conversational dynamics. While a great deal of work has looked at *what* consumer and employee language matters, *when* linguistic approaches are most useful has received little attention. While prior work suggests speakers should be only warm or competent, our dynamic approach reveals that the warmth/competence trade off may not be so stark. Finally, this work introduces a new method by which consumer and marketing scholars can consider temporal features of language in a range of marketplace dialogues (e.g., social media, live sales interactions). To demonstrate, we offer additional sample applications of the method to previously investigated conversational features like personal pronouns and questions.

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