IDEA REJECTED, TIE FORMED:
ORGANIZATIONS' FEEDBACK ON CROWDSOURCED IDEAS

Henning Piezunka
INSEAD

Linus Dahlander
ESMT Berlin

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Abstract: When organizations crowdsource ideas, they select only a small share of the ideas that contributors submit for implementation. If a contributor submits an idea to an organization for the first time (i.e., newcomer), and the organization does *not* select the idea, this may negatively affect the newcomer's relationship with the organization and willingness to submit ideas to the organization in the future. We suggest that organizations can increase newcomers' willingness to submit further ideas by providing a thus far understudied form of feedback: *rejections*. Though counterintuitive, we suggest that rejections encourage newcomers to *bond* with an organization. Rejections signal contributors that an organization is interested in both receiving their ideas and developing relationships with them. To test our theory, we examine the crowdsourcing of 70,159 organizations that receive ideas from 1,336,154 contributors. Using text analysis, we examine differences in how rejections are written to disentangle the mechanisms through which rejections affect contributors' willingness to continue to interact with an organization. We find that receiving a rejection has a positive effect on newcomers' willingness to submit ideas in the future. This effect is stronger if the rejection includes an explanation and is particularly pronounced if the explanation accompanying the rejection matches the original idea in terms of *linguistic style*.

To stay innovative, organizations must maintain a constant flow of new ideas. One way organizations can gain access to new ideas is by *crowdsourcing* them via publicly accessible suggestion boxes (Alexy, Salter & Criscuolo, 2012; Bayus, 2013; Dahlander & Piezunka, 2014; Fayard, Gkeredakis & Levina, 2016). Individual contributors from outside the organization can use these suggestion boxes to submit ideas for how the organization can innovate (Gambardella, Raasch & von Hippel, 2017). Crowdsourcing ideas allows organizations to tap into the widely dispersed knowledge of contributors (Afuah & Tucci, 2012; Baldwin & von Hippel, 2011; Franke, Poetz & Schreier, 2014; Jeppesen & Lakhani, 2010; Lakhani, Lifshitz-Assaf & Tushman, 2013; Lifshitz-Assaf, 2018).

Organizations tend to select only a small subset of submitted ideas for implementation (Piezunka & Dahlander, 2015). If an organization does *not* select a contributor's idea, it may negatively affect the organization's relationship with the contributor, as well as the contributor's willingness to submit further ideas to the organization (Franke, Keinz & Klausberger, 2013). This negative effect may be amplified for *newcomers*: contributors who have had no prior interaction with the organization (Bayus, 2013; Halfaker, Kittur & Riedl, 2011). Newcomers are still forming their relationships with the organization and assessing whether they and the organization are a good match. Newcomers are likely to base their decisions on whether to continue to interact with the organization on their experiences during their initial interactions with the organization. If an organization does not select newcomers' first ideas, the newcomers may conclude that the organization is not interested in them or their ideas and that they and the organization are not a good match. As a result, they may decide to stop interacting with the organization. Using Simmel's (1950) terminology, these newcomers may become "*wanderers*:" coming today and leaving tomorrow. In other words, their relationships with the organization may die in their infancy.

When newcomers stop interacting with an organization and submit no further ideas, it

negatively affects the organization's crowdsourcing. The organization misses out on additional ideas the newcomers would have submitted. Newcomers ceasing to submit ideas is particularly harmful because the quality of contributors' ideas tends to improve as they continue to submit (Conti, Gambardella & Mariani, 2014; Deichmann & van den Ende, 2014; Huang, Singh & Srinivasan, 2014). Although the consequences of newcomers forgoing future interactions are grim, it is unclear what organizations can do to increase newcomers' willingness to continue to interact with them (i.e., to submit more ideas) when they do not select newcomers' first ideas.

We develop a theory of how the feedback organizations provide to newcomers whose ideas they do not select for implementation affects their relationships with these newcomers and the newcomers' willingness to submit further ideas. We focus on a type of feedback that has been largely neglected by both researchers and practitioners: *rejections*. We hypothesize that rejections lead contributors to bond; that is, that rejections increase contributors' willingness to continue to interact with organizations. While it may be counterintuitive to associate rejections with bonding, we suggest that rejections signal to contributors that an organization is interested in receiving their ideas and developing relationships with them. We further hypothesize that this effect is particularly pronounced when rejections signal to newcomers that they and an organization are a good match. Rejections, thus, play a crucial role in fostering relationships between organizations and newcomers and helping newcomers overcome the discord that can arise when their first ideas are not selected.

To test our theory, we examine the crowdsourcing initiatives of 70,159 organizations that have integrated virtual suggestion boxes into their websites (e.g., Bayus, 2013; Dahlander & Piezunka, 2014). We examine the 1,336,154 contributors who visit these organizations' websites and use their virtual suggestion boxes to submit ideas for how the organizations can innovate. We examine contributors when they are newcomers—that is,

after they have submitted their first ideas—and examine whether they submit second ideas. We collected our data from the U.S.-based company that develops the cloud-based software underlying the organizations' virtual suggestion boxes. The organizations use this software to collect ideas from and communicate with contributors and to select which ideas to implement. Therefore, the dataset includes rich, time-stamped longitudinal data for all events taking place during a contributor's life-cycle. Leveraging new information retrieval methods for content-coding large datasets (George, Haas & Pentland, 2014; George, Osinga, Lavie & Scott, 2016), we examine the differences in how rejections are written to disentangle the mechanisms that shape how rejections affect newcomers' willingness to continue to interact with an organization (i.e., to submit further ideas). Using the full text of both ideas and rejections, we analyze the effect of similarities between the text of ideas and the text of rejections in terms of *informational content* and *linguistic style*.

Beyond creating and analyzing a novel quantitative dataset, we also collected qualitative data. We familiarized ourselves with the software, visited the company that develops the software seven times, and interacted closely with the company's executives through emails and phone calls. We had numerous informal conversations with both representatives of organizations that had crowdsourced ideas and contributors who had submitted ideas. Our personal experiences and our conversations with these various stakeholders informed the development of our theory and ensured the face validity of our findings.

Our findings show that, among newcomers whose first ideas are not selected, those who receive explicit rejections are more likely to submit second ideas than those who receive no feedback. Our examination of different kinds of rejections reveals that, while even rejections *without* any explanation have a positive effect, the positive effect of rejections *with* explanations is stronger. We find that the positive effect of an explanation accompanying a

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rejection is particularly strong if the explanation is written in the same *linguistic style* as the idea submitted by the newcomer.

We discuss implications for research on *tie formation* by providing new insights into how relationships can continue despite failed initial interactions and how micro-interactions shape tie formation by arguing that language shapes the formation of ties in a virtual context. Our work also has broader implications for research on *feedback in creative processes* by showing how a so-far neglected type of feedback (i.e., rejections) affects relationships between feedback-seekers and feedback-providers. Finally, we discuss implications for research on *crowdsourcing* by illustrating an important organizational activity and capability relating to managing crowds: keeping crowd members motivated and helping them overcome the experience of failing to get their first suggestions selected.

THEORETICAL BACKGROUND

Interaction in the Tie Formation Process

At the center of our reasoning are the relationships between newcomers and organizations. Specifically, we focus on the early stage of tie formation between an organization and a contributor: the stage during which a tie has not (yet) formed, but a first interaction has taken place. This stage of the relationship between newcomer and organization is comparable to the relationship stages of business (wo)men who have met for the first time and exchanged business cards (Vissa, 2011), students who have attended the same networking event (Ingram and Morris, 2007), or singles who have met for the first time at a speed-dating event (McFarland, Jurafsky & Rawlings, 2013). While one attempt to interact has taken place, it is unclear whether there will be any future interactions. In other words, in this stage, actors are still uncertain about one another.

Before their first interaction, actors rely on publicly available information and hearsay to learn about one another and reduce uncertainty (Gulati & Gargiulo, 1999; Sorenson &

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Stuart, 2001). Once they begin to interact, they gather private information to form a more accurate impression (Fichman & Levinthal, 1991). While a large body of research has examined how publicly available information affects whether and how actors form ties (Gulati & Gargiulo, 1999; Hallen & Pahnke, 2016; Kleinbaum, Stuart & Tushman, 2013; Mindruta, Moeen & Agarwal, 2016; Mitsuhashi & Greve, 2009), the role of the private information that is revealed once actors begin to interact is less well examined, often due to a lack of data on these micro-interactions. Prior research on micro-interactions in the tie formation process—in most cases, theory-developing work based on a small set of cases (Hallen & Eisenhardt, 2012; Ozcan & Eisenhardt, 2009; Zott & Huy, 2007)—has focused on the actions of the actors initiating the tie. By contrast, we know very little about the role of feedback from the actor contacted by the focal actor. We suggest that the feedback an actor receives has a substantial effect on the actor's willingness to continue to interact.

Research at the intersection of tie formation and feedback has focused primarily on performance-related feedback. This research suggests a strong link between the outcomes of previous interactions and actors' willingness to continue to interact (Baum, Rowley, Shipilov & You-Ta, 2005; Zhelyazkov & Gulati, 2016). For example, organizations whose initial collaborations are successful tend to increase their commitment to the relationship (Sorenson & Waguespack, 2006), and researchers whose previous grant applications have been successful tend to continue to collaborate (Dahlander & McFarland, 2013). By contrast, actors whose initial interactions fail to produce the desired outcome tend to forego future interactions. For example, executives working with executive search firms tend to forego future interactions if prior interactions have not led to a desired job offer (Brands & Fernandez-Mateo, 2017; Fernandez-Mateo & Coh, 2015). However, while we know that actors' willingness to engage in further interactions depends on the outcomes of prior interactions, we do not know when actors may choose to continue to interact even when prior

interactions have been unsuccessful.

Contributors' Willingness to Engage in the Crowdsourcing of Ideas

Research on people's motivations to contribute without being remunerated has built on and advanced research on incentives (Alexy & Leitner, 2011; Boudreau, Lacetera & Lakhani, 2011; Gallus, 2016), social identity (Tajfel, Billig, Bundy & Flament, 1971), self-determination theory (Ryan & Deci, 2000), self-concept (Leonard, Beauvais & Scholl, 1999), and norms (Alexy & Leitner, 2011). It has attracted scholars from various disciplines, including organizational theory (Jeppesen & Frederiksen, 2006; Lakhani & Wolf, 2005; Shah, 2006), economics (Boudreau & Jeppesen, 2015; Lerner & Tirole, 2002; Zhang & Zhu, 2011), and information systems (Bagozzi & Dholakia, 2006; Kane & Ransbotham, 2016; Kraut et al., 2012; Ren et al., 2012; Stewart & Gosain, 2006). Particularly helpful for our study is that research in this domain has differentiated between the motivations of newcomers and established contributors (Chen, Harper, Konstan & Xin Li, 2010; Halfaker et al., 2011; Morgan, Bouterse, Walls & Stierch, 2013; Shah, 2006), identifying and emphasizing newcomers' particular characteristics. Scholars have examined motivations to contribute to various kinds of endeavors, including idea crowdsourcing (Bayus, 2013; Dahlander & Piezunka, 2014; Deichmann & Jensen, 2018; Deichmann & van den Ende, 2014), technical support groups (Moon & Sproull, 2008), free and open-source software (Greenstein & Zhu, 2012; Lerner & Tirole, 2002; Nagle, 2018), and knowledge platforms (Nagaraj & Piezunka, 2018; Nov, 2007).

Prior work on contributors' motivations to contribute to organizations' idea crowdsourcing informs us that contributors submit ideas to organizations in the hopes of having their ideas selected for implementation. Contributors' willingness to submit ideas in the future increases if organizations invest "time and effort in the implementation of suggestions" (Dahlander & Piezunka, 2014: 815). Contributors are likely to appreciate the

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attention organizations give them when they implement their ideas. They are also likely to directly benefit from such implementation because contributors are often also users of an organization's products and services. Prior research shows that organizations' selection of ideas for implementation has a positive effect on contributors' willingness to submit ideas, but this research has yet to examine what organizations can do to foster a willingness to submit further ideas among contributors whose ideas they do *not* select. Taken together, the research on tie formation and crowdsourcing shows that the outcome of an interaction plays an important role in the continuation of the interaction, but falls short of explaining how to foster actors' willingness to continue to interact when the initial interaction does not lead to the desired outcome.

HYPOTHESES

We suggest that the feedback newcomers receive during their first interactions with an organization can positively affect their impressions of the organization, even when these interactions do not lead to the desired outcome. In most such cases (88% in our sample), newcomers receive *no feedback*. We suggest that if newcomers instead receive *explicit rejections*, this has a positive effect on their willingness to continue to interact with the organization (i.e., to submit second suggestions). At first glance, the positive impact of an explicit rejection may be counterintuitive, since we tend to associate a rejection with the end of an interaction, rather than its continuation (Brands & Fernandez-Mateo, 2017; Fernandez-Mateo & Coh, 2015; Newark, Flynn & Bohns, 2014). However, while a rejection is unlikely to have the same positive effect as a selection, we hypothesize that rejections do have a positive effect on newcomers' willingness to continue to interact with an organization.

Rejections: Signals of Organizations' Interest in Newcomers' Ideas and Relationships

We hypothesize that even rejections that only notify newcomers that a submitted idea has been rejected (i.e., rejections *without* any explanation) increase newcomers' tendency to

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submit further ideas because they resolve the newcomers' uncertainty about the organization's interest in their ideas. Newcomers may be concerned that an organization's crowdsourcing initiative is purely a "window-dressing operation;" that is, they may suspect that the organization is merely attempting to appear open and is not actually paying any attention to submitted ideas. Such concerns are understandable, since there are several known cases in which organizations have not used any of the ideas they have crowdsourced (Alexy et al., 2012). Even if newcomers accept that an organization is paying attention to contributors' ideas in general, they may worry that it will not pay attention to *their* ideas. Organizations pay attention to only a small subset of ideas (Haas, Criscuolo & George, 2015; Hansen & Haas, 2001), often shifting their attention away from ideas submitted by newcomers and towards ideas submitted by established contributors (Piezunka & Dahlander, 2015). Thus, even rejections that merely notify newcomers that a submitted idea has been rejected signal to the newcomers that the organization is interested in their ideas. Our interviewees confirmed that receiving a rejection resolved their uncertainty about whether an organization was paying attention to their ideas. As a result, rejections had the counterintuitive effect of rendering newcomers more optimistic about their chances of getting future ideas selected because they reassured newcomers that the organization was looking at and considering their ideas.

> *Hypothesis 1 (H1): An explicit rejection that only notifies a newcomer that a submitted idea has not been selected for implementation but provides no additional explanation increases a newcomer's willingness to continue to interact with the organization (i.e., to submit more ideas).*

Rejections can also provide more information than simply the outcome of the organization's decision; they can also explain why an idea was rejected. An explicit rejection *with* an explanation signals to newcomers that the organization is interested not only in their ideas, but also in developing relationships with them. Prior research underscores the

importance for contributors of developing relationships with organizations and fellow contributors (Jeppesen & Frederiksen, 2006; Ren et al., 2012; Ren, Kraut & Kiesler, 2007). For newcomers, the submission of an idea is a vehicle for developing such a relationship. We spoke, for example, to a video game consumer who submitted an idea to a video game company with the intent of developing a relationship with that company. However, although newcomers strive to develop relationships with organizations, they are uncertain whether organizations are interested in developing relationships with them. Correspondingly, they are concerned about whether organizations value their relationships. In our conversations, we learned that newcomers were concerned that organizations see (and treat) the crowd as a sea of anonymous and replaceable contributors. Interviewees pointed out that, since organizations do not pay contributors anything, it is unclear how much organizations value them.

An explicit rejection *with* an explanation signals to newcomers that an organization is interested in developing a relationship with them. When an organization has already decided not to pursue an idea, any time and effort the organization devotes to that idea is clearly focused on developing a relationship with the newcomer. Our interviewees pointed out that organizations would not invest time and effort in writing a detailed rejection if they were not interested in developing relationships with contributors. Thus, while rejections are generally seen as expressions of disinterest, the interviewed newcomers saw rejections as signals of an organization's interest in and valuation of a relationship.

Another reason rejections with explanations render newcomers more likely to continue interacting with and submitting ideas to an organization is that rejections have the potential to render newcomers satisfied with the crowdsourcing process. Research on fair processes and procedural justice in the context of crowdsourcing illustrates that contributors expect to be treated fairly (Franke et al., 2013). While newcomers may be disappointed when

their ideas are not selected, they are likely to still be satisfied with the process if the organization takes the time to evaluate their ideas and provide an explanation for the rejection. Indeed, the interviewees confirmed that though they did not expect their ideas to be selected, they did expect them to be carefully considered by the organization. Research on voice illustrates how important it is for people who share their opinions to be heard (Burris, Detert & Chiaburu, 2008; Burris, Detert & Romney, 2013; McClean, Burris & Detert, 2012). In other words, when newcomers volunteer their time and effort to share their ideas with organizations, they believe that the organizations should reciprocate by investing time and effort to respond to their submissions. In this light, rejections signal a fair process and procedural justice.

> *Hypothesis 2 (H2): The positive effect of an explicit rejection on a newcomer's willingness to continue to interact with the organization (i.e., to submit more ideas) hypothesized in H1 is stronger if the rejection includes an explanation.*

Rejections: Signals of matching in terms of content and style

In H1 and H2, we propose that newcomers' willingness to continue to interact with an organization depends on the degree to which they perceive the organization as being interested in receiving their ideas and developing relationships with them. In the following, we suggest that newcomers use the explanations that accompany rejections to assess the degree to which they and the organization *match*. If newcomers perceive a match, they are more likely to submit second ideas. Here, the example of dating is illustrative: An individual's tendency to pursue a second date depends on the individual's perceptions of both the other individual's interest in the relationship (as proposed in H1 and H2) and the other individual's potential as a good match (as proposed in H3 and H4). Matching is a central concept in relationship formation (Lazarsfeld & Merton, 1954; McPherson, Smith-Lovin & Cook, 2001; Mindruta et al., 2016; Mitsuhashi & Greve, 2009; Vissa, 2011). It indicates whether actors are compatible with one another and, thus, whether they expect interactions

with one another to be satisfying. We argue that rejections can signal a good match with an organization and that this may, in turn, increase newcomers' willingness to continue to interact with the organization.

To assess whether an organization is a good match, newcomers are likely to focus on the explanations (if any) that accompany the organization's rejections. In virtual interactions with organizations, individuals cannot observe many of the characteristics they typically rely on to assess a match (e.g., ethnicity, age, or gender); instead, they must depend on the information available to them: the explanations (if any) the organization provides for its decisions. We suggest that newcomers examine matches in terms of both *what* the organization communicates (i.e., the *informational content* of the explanation accompanying the rejection) (H3) and *how* the organization communicates it (i.e., the *linguistic style* of the explanation accompanying the rejection) (H4). Specifically, we theorize about the degree to which the explanation accompanying a rejection matches a newcomer's first idea in terms of informational content and linguistic style.

With respect to what an organization communicates (i.e., the informational content), newcomers are uncertain whether they and the organization match in terms of issues of interest. A match in terms of issues cannot be taken for granted because organizations are generally only interested in a small subset of the numerous issues around which contributors submit ideas (Piezunka & Dahlander, 2015). The following example illustrates a match in terms of informational content. A newcomer submitted the idea: "For the next product release, I would suggest that you increase the material's heat resistance so that it complies with regulatory standards." The organization rejected the idea with the following explanation: "The heat resistance of our material already exceeds regulatory standards. We will thus not increase the heat resistance any further. Of course, we will ensure compliance with regulatory

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standards." [1] In this example, while the organization rejectted the newcomer's idea, the explanation signalled the newcomer that she and the organization were focused on the same issues (i.e., "heat resistance," "compliance," "material," and "regulatory standards").

We hypothesize that a match in terms of informational content has a positive effect on newcomers' willingness to continue to interact. Prior research points to the importance of a match in terms of issues when interacting (Collins, 2014; Rhee, Ocasio & Zajac, 2018). [2] One reason a match in terms of issues is crucial for newcomers is that it provides newcomers with learning opportunities. In the outlined example, the explanation accompanying the rejection allows the newcomer to learn about both the product's heat resistance and regulatory standards. Another reason a match in terms of informational content positively affects newcomers' willingness to continue to interact is that it signals to newcomers that the organization is focused on the same kinds of issues. For contributors, who are often users of the products and services of the organizations to which they submit ideas (Kane & Ransbotham, 2016; von Hippel, 1986), such a match is important, as it suggests that the organization will take the issues they care about into account when innovating. In the case of the above example, we can assume that the organization will continue to focus on heat resistance, compliance, and regulatory standards.

> ***Hypothesis 3 (H3)***: *The effect of an explicit rejection with an explanation hypothesized in H2 is* <u>*stronger*</u> *when the explanation indicates that the organization matches with the contributor in terms of* <u>*content*</u>.

With respect to how the organization communicates (i.e., the linguistic style), newcomers are uncertain whether they and the organization match in terms of style. While newcomers can

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[1] Please note that the examples in Hypotheses 3 and 4 have been slightly modified from the originals to preserve the anonymity of both the company developing the software and the organizations and newcomers using the software.
[2] Research on micro-interactions refers to a focus on the same issues as a "mutual focus" (Collins, 2014). Collins (2014) illustrates that a mutual focus affects partners' willingness to continue to interact. Rhee, Ocasio, and Zajac (2018), who use an operationalization that differs from our, refer to a focus on the same issues as "cognitive congruence," which they show affects partners' ability to innovate together.

observe an organization from the outside before their first interaction, it is difficult for them to judge whether they will enjoy the one-on-one interaction with the organization before an initial interaction has taken place. The following is illustrative of such a match: "Guys, your staff is generally awesome, but last release was crap. New interface design sucks like hell. PLZ drop ASAP." The software company rejected the idea with the following explanation: "Sorry bro. Changes were kinda necessary cuz of compatibility issues. Dunno why this is such a big deal. Peeps generally like it. Not sure why you think it sucks." While the organization rejected the newcomer's idea, the explanation clearly reveals a match in the newcomer's and the organization's linquistic style, as the language used by both parties can be described as netspeak, swearing, male, and informal (Pennebaker, Boyd, Jordan & Blackburn, 2015).

Our argument is that a match in terms of linguistic style has a positive effect on newcomers' willingness to continue to interact. Prior research has shown that speaking the same language is crucial for an interaction to take place, to continue, and to be successful (March & Simon, 1958; McPherson et al., 2001; Nahapiet & Ghoshal, 1998; Vissa, 2011). Recent research has provided fine-grained evidence that, among people speaking the same language, a match in terms of linguistic style has a similar effect (Goldberg, Srivastava, Manian, Monroe & Potts, 2016; Srivastava, Goldberg, Manian & Potts, 2018). The shared usage of the same linguistic style signals a match. So, even when organizations reject their ideas, newcomers may still feel a bond when the organizations "speak the same language." The shared usage of the same linguistic style also lowers the cost of engagement and improves the quality of the interaction, thus increasing newcomers' willingness to continue to interact.

> ***Hypothesis 4 (H4):*** *The effect of an explicit rejection with an explanation hypothesized in H2 is* <u>*stronger*</u> *when the explanation indicates that the organization matches with the contributor in terms of* <u>*linguistic style*</u>.

METHODS

Data

To gain access to data to test our theory, we collaborated with a software-as-a-service company based on the West Coast of the U.S. Organizations use this company's software to collect and manage crowdsourced ideas through virtual suggestion boxes. The virtual suggestion boxes are similar across organizations, with minor differences in color schemes, etc. Contributors can visit the organizations' websites and submit ideas by completing the sentence, "I suggest to you …" For example, one newcomer submitted the following game-specific idea to an organization developing video games: "I think the game would be more interesting if the levels were in 3D."[3] The complete idea included an explanation of how the idea could be implemented. Organizations also use the software to administer the submitted ideas: that is, to document which ideas they select for implementation. Lastly, organizations use the software to publicly communicate their selection and rejection decisions—and explanations, if any—to all contributors. For example, in the above example, a programmer representing the video game developer rejected the idea with the following explanation: "We do not plan on extending [game] into the 3D dimension. Two dimensions is the perfect number of dimensions in order to keep things simple."

The collected dataset provided us with detailed and time-stamped information for each contributor and his or her idea(s). At the level of the contributors submitting ideas, we tracked all activities, including ideas submitted, comments written, and votes allocated to other contributors' ideas. Contributors were identified via usernames and web cookies. Tracking the contributors' activities was critical for examining how the contributors reacted

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[3] Please note that this example has been slightly modified from the original in order to preserve the anonymity of both the company developing the software and the organization and the newcomer using the software.

to the organizations' feedback. At the level of the ideas, we retrieved both the complete text of each idea and all comments and votes each idea received from other contributors. Since the organizations in our sample used the idea software to manage the complete process of idea solicitation (including idea reviewing, selecting, and rejecting, in addition to idea collecting), we could determine whether and when an organization selected or rejected each idea. Moreover, since the organizations also used the software to communicate with the contributors, we had access to all the explanations organizations provided for their rejections.

The collaboration with the software-as-a-service company allowed us access to data on the crowdsourcing of 70,159 organizations. Recent research has underscored the potential for analyzing the electronic communication of single companies (Aven, 2015; Goldberg et al., 2016; Quintane & Kleinbaum, 2011; Srivastava et al., 2018). Such research is challenging and difficult to scale due to the challenges of gaining access to data on even a single organization. In our case, given the relative infrequency of rejections, we required access to data on crowdsourcing by numerous organizations. By collaborating with the software-as-a-service company, we were able to gain data on the crowdsourcing of 70,159 organizations that received 2.6 million ideas from 1,336,154 contributors between the launch of the software in November 2007 and the end of our observation period in June 2013. This renders our dataset (to the best of our knowledge) the largest and most comprehensive dataset on ideas ever analyzed.

We cleaned the data in several steps. First, we removed all ideas that the software coded as spam and the contributors who submitted these messages. Second, we removed all blank ideas (which we believe occurred when contributors mistakenly clicked the idea submission button). Third, we focused on ideas written in English, since this was necessary for us to understand and analyze the ideas' content using an existing corpus of words. The

original data and the methods chosen to process the data allowed us to fully leverage the potential of big data (George et al., 2014; George et al., 2016; Golder & Macy, 2014).[4]

Dependent Variable

Continued interaction. Our dependent variable captures whether a newcomer continues to interact with an organization (i.e., whether a newcomer ever contributes a second idea to the organization). This variable is coded as a dummy variable that takes the value of one if newcomer i posts a second idea in calendar month t, where t is any calendar month following the period of the newcomer's first entry. For this analysis, all newcomers who have posted ideas in the past are considered to be at risk for posting second ideas.

Independent Variables

To assess the overarching effects of rejections and selections (not hypothesized), we create the variables *First idea rejected* and *First idea selected*. To reject or select an idea, an organization changes the status of the idea in the administrator back-end of the submission software. Then, the newcomer who made the idea is informed via email that his or her idea has been rejected or selected, and the idea is publicly labeled as rejected or selected for all contributors to see. With each decision, the organization has the option to provide an explanation, which is also made public. To operationalize the organizations' decisions, we create a dummy variable, which switches from a value of zero to a value of one during the month in which a newcomer's first idea is rejected or selected and then maintains its value of one thereafter.[5] This variable allows us to assess how the hazard of a newcomer submitting future ideas changes when organizations respond to their first ideas with rejections or

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[4] Please note that we used a subset of this data in previously published work (Dahlander & Piezunka, 2014; Piezunka & Dahlander, 2015). For the present paper, we extend the dataset (i.e., collected more data) and compute new variables.
[5] *First idea selected* aggregates several types of status changes: specifically, whenever an organization changes the status of an idea to "scheduled," "in work," or "implemented." We examine whether ideas that organizations change to one of these statuses are eventually implemented and generally find this variable to be a reliable indicator of whether an organization selects and eventually implements an idea.

selections. In the estimations, we also account for endogeneity, since we do not have random assignments of which ideas organizations reject (for more details, see the estimations section).

In **H1**, we hypothesize that rejections can increase newcomers' willingness to continue to interact by indicating that the organization is paying attention to their ideas. To test H1, we create the variable *First idea rejected—without explanation* to represent a rejection in which the organization simply changes the idea's status to rejected and the newcomer is merely notified that his or her idea has been rejected.

In **H2**, we propose that the effect hypothesized in H1 is stronger when the organization devotes time and effort to write an explanation to accompany the rejection. To test H2, we create the variable *First idea rejected—with explanation*, which we use to examine whether a newcomer's idea is rejected with an explanation.

In **H3**, we examine the informational content of the explanation accompanying a rejection. We propose that rejections can increase newcomers' willingness to continue to interact with an organization when they signal a match between the organization and the newcomer in terms of issues of interest. To test H3, we create the variable *First idea rejected—explanation matches idea content*, which we use to examine whether an organization's explanation matches the newcomer's submission in terms of discussed issues. To operationalize this variable, we use large-scale quantitative text analysis. Before comparing the texts of the idea and the explanation, we remove non-alphabetical characters (e.g., punctuation, numbers, and white space) and convert all words to lowercase. We also stem each word to its root form, a practice commonly used to enable comparisons across documents and to match multiple content databases. Furthermore, we remove stop words with little information content, such as "if" and "when" (we also conduct the analysis without removing these stop words, with consistent results). Then, following a "bag of words"

approach, we transform the remaining texts for the idea and the corresponding explanation into word vectors, which we compare to one another. The match is then computed as the cosine similarity of two binary vectors representing the unique terms occurring in the idea and the response. Responses and ideas with more co-occurring words relative to the total number of unique words used have a stronger match. Our informal conversations confirm the face validity of this measure.

In **H4**, we hypothesize that rejections can increase newcomers' willingness to continue to interact by indicating that an organization and a newcomer match in terms of linguistic style. To test H4, we create the variable *First idea rejected—explanation matches idea style*, which we use to examine whether a newcomer's idea and an organization's explanation of a rejection use the same linguistic style, following the approach specified by (Goldberg et al., 2016). Specifically, to determine the linguistic style of a text, we begin by removing non-alphabetical characters and converting all words to lowercase. Treating the remaining idea and explanation texts as "bags of words," we classify the remaining text according to the subcategories captured in the Linguistic Inquiry and Word Count (LIWC) 2015 dictionary.[6,7] For each category, we count how many words in the text relative to the total number of words in the text belong to each specific category. Thus, for each text, we create a vector that captures the relative share of words in the text listed in each LIWC category. We create such a vector for each of the ideas and explanations in our sample. To

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[6] We use the subcategories where available. In cases for which the subcategory is available, we exclude the corresponding meta-category to avoid double-counting.

[7] We code rejections using the LIWC 2015 dictionary (see, e.g., Pennebaker, Booth, & Francis (2007)). The underlying assumption of LIWC dictionaries is that the ways in which contributors talk or write provide insight into their emotional and cognitive worlds. For instance, psychologists have used LIWC dictionaries to connect word use to emotional experiences and psychological wellbeing (see, e.g., Pennebaker, Mayne, & Francis (1997). The LIWC 2015 dictionary is better suited to "netspeak" than earlier variants of LIWC dictionaries. More importantly for this study, LIWC dictionaries have been used to interpret content in numerous and diverse situations and are replicable by other researchers. Although other dictionaries exist, inter-dictionary correlations are high (Jurafsky & Martin, 2009). It is crucial to grasp that we control not for any particular style, but simply for whether styles match.

determine the degree to which an idea and a rejection explanation match in terms of linguistic style, we compute the cosine similarity between the two vectors. An interesting implication of this operationalization is that an idea and a rejection explanation may be similar in style, even if they do not share specific individual words. This is the case for the example used in the development of H4.

Organizational-level Control Variables

We account for differences among organizations, since such differences can affect contributors' future behaviors.

Ideas rejected by the organization. Organizations vary in the extent to which they reject ideas. It is plausible that contributors' behaviors differ depending on this tendency. Thus, we control for an organization's tendency to reject ideas by measuring the cumulative number of ideas that an organization rejects in calendar month t-1. This variable is also interesting by itself because it allows us to examine the effect rejections have on other contributors who are not rejected.

Ideas selected by the organization. Dahlander and Piezunka (2014) show that the number of ideas an organization selects affects contributors' tendency to submit ideas. Thus, we account for the number of ideas an organization has selected in the past by measuring the cumulative number of ideas selected for implementation in calendar month t-1.

Crowding—ideas proposed to the organization. Crowding, or the level of competition from competing ideas at a given point in time, can affect a newcomer's tendency to continue to interact with an organization (Piezunka & Dahlander, 2015). Therefore, we control for crowding by recording how many ideas are at risk (i.e., have not yet experienced a status change) in calendar month t-1.

Age. Organizations' crowdsourcing initiatives differ in age. Age may affect contributors' willingness to participate. For example, contributors may be more excited or

cautious about contributing shortly after an organization initiates a crowdsourcing initiative, but change their behavior as the initiative grows older. We operationalize age by measuring the number of months elapsed since an organization received its very first idea via the submission software.

Individual-level Control Variables

Newcomer anonymity. The submission software allows newcomers to submit their ideas anonymously, without publicly viewable usernames. We expect newcomers who do not reveal their identities to be less likely to submit ideas in the future. Thus, we include a dummy variable that takes the value of one if a newcomer was anonymous when submitting his or her idea.

Newcomer employed by the organization. Prior work shows that some organizations post their own ideas to give an impression of activity and to stimulate idea submission (Dahlander & Piezunka, 2014). One would expect the employees submitting an organization's own ideas to be more likely to submit multiple ideas. Thus, we create a dummy to measure whether a newcomer is employed by the organization soliciting ideas. We also conduct our analysis with these newcomers excluded, with consistent results.

Comments given. Another indication of a newcomer's links to other contributors is the extent to which the newcomer comments on other contributors' ideas (Bayus, 2013). We account for this indicator by measuring the cumulative number of comments posted by newcomer i on other contributors' ideas in calendar month t-1.

Comments received. Contributors often comment on other contributors' ideas to share their own opinions and frames of reference. Newcomers who receive comments on their ideas may be more likely to continue to interact with an organization (i.e., submit new ideas) (Bayus, 2013; Ren et al., 2012; Ren et al., 2007; Zhang & Zhu, 2011). We therefore measure the cumulative number of comments received by a newcomer i's idea in month t-1.

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Votes given. Research on joining scripts suggests that contributors often begin to engage via simple activities (e.g., voting or commenting) and then move on to more advanced activities (e.g., posting ideas) (Kane & Ransbotham, 2016; von Hippel & von Krogh, 2003). We account for this phenomenon by measuring each newcomer i's votes on other contributors' ideas in month t-1. This variable assesses how well a newcomer is integrated into the community, as well as his or her awareness of the ideas suggested by other contributors.

Votes received. The number of endorsements a newcomer receives from other contributors may affect his or her likelihood of continuing to interact with an organization. Prior research has identified a link between contributors' embeddedness in a community and their commitment to the community (Ren et al., 2012; Ren et al., 2007; Zhang & Zhu, 2011). Thus, we control for the cumulative number of votes received by newcomer i's first idea in calendar month t-1.

Idea-level Control Variables

Idea length. We measure the length of a newcomer's first idea by counting the number of words in this idea. Number of words is an indicator of the effort a newcomer puts into his or her idea because the length of an idea reflects the idea's level of detail and the amount of time spent to formulate the idea. The amount of time a newcomer invests in his or her first idea may be correlated with the newcomer's tendency to submit further ideas.

Linguistic style. Research has shown that newcomers' linguistic styles are often correlated with certain personal characteristics (Pennebaker et al., 1997; Tausczik & Pennebaker, 2010). Since such characteristics may be linked to newcomers' tendency to continue to interact with an organization, we control for those linguistic styles that indicate personality characteristics particularly likely to affect contributors' behavior. As illustrated above in the explanation of the *First idea rejected—explanation matches idea style* variable,

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we treat every idea as a bag of words and match these words with selected categories. We control for the linguistic styles shown by prior research to indicate behavior. Specifically, we control for the use of words associated with cognitive processes,[8] perceptual processes,[9] temporal orientation,[10] analytical thinking,[11] authenticity,[12] tone,[13] and clout,[14] as well as the use of words with lengths of at least six letters,[15] negations,[16] and function words and pronouns.[17] Please note that, for H4, we do not examine whether an idea or explanation falls into a particular set of categories; rather, we examine whether the idea and the explanation match across all categories.

Rejection-level Control Variables

Rejection length. We measure the length of the explanation of the rejection. Specifically, we count the number of words in the explanation of the rejection..

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[8] The ways in which contributors write their ideas reveal information about their cognitive processes, which social psychologists believe affect engagement levels. Following Pennebaker et al. (1997), we measure the share of words in each idea related to insight (e.g., "think," "know," "consider"), causation (e.g., "because," "effect," "hence"), discrepancy (e.g., "should," "would," "could"), and tentativeness (e.g., "maybe," "perhaps," "guess"). For each idea, we use the LIWC 2015 score for the corresponding category.

[9] It is plausible that contributors who use perceptual words (e.g., "observe," "see," "feel," "listen") are more likely to continue to interact with an organization. Thus, we control for the share of words in each idea related to perceptual processes.

[10] It is plausible that contributors who are more forward-looking in their ideas are more likely to interact again. To account for this possibility, we code the share of words in each idea representing past, present, or future tense verbs (Nadkarni & Chen, 2014). We separate these three categories in the analyses in order to analyze whether verb tense affects contributors' tendency to continue to interact with an organization.

[11] We account for the extent to which a rejection includes words associated with formal, logical, and hierarchical thinking, as opposed to more informal, personal, and narrative thinking. It is possible that contributors with greater analytical reasoning abilities are more likely to submit future ideas. Therefore, we control for this in the analyses.

[12] Pennebaker and colleagues have noted that high authenticity scores are associated with more honest, personal, and disclosing (as opposed to more distant and guarded) text. It is plausible that contributors with higher authenticity scores are more likely to continue to interact with an organization. Therefore, we measure the extent to which an idea includes authentic language and account for this in our analyses.

[13] To code the tone of the ideas, we use the LIWC 2015 categories for positive and negative words and compute the ratio of positive words to the sum of positive and negative words. This measure allows us to account for the assumption that contributors using more positive (negative) tones are more (less) likely to submit ideas in the future.

[14] The LIWC 2015 dictionary allows us to capture clout, or whether a person is speaking from an expert and confident position. We measure clout because confident individuals may be more inclined to believe that they will eventually convince an organization of the merits of their ideas.

[15] We account for complex language use using a common strategy of counting the number of words with more than six letters (Tausczik & Pennebaker, 2010). It is plausible that contributors who use more complex language have spent more time thinking about their ideas, indicating a likelihood to persist past the first idea.

[16] We control for the use of negation words ("never," "not"), since extraversion and negation are highly negatively correlated (Pennebaker & King, 1999). The absence of negation words could indicate a greater propensity for continued interaction.

[17] Function words are words with little lexical meaning, such as prepositions, auxiliary verbs, or conjunctions used to express grammatical relationships. Pronouns replace nouns and are used to avoid repetition.

Linguistic style. We also account for the linguistic style of the explanation of a rejection. Here, we examine whether an explanation has a particular style, not whether the styles of the first idea and the explanation accompanying the rejection match. Controlling for the linguistic style used in the regression is important as it allows us to determine whether, as hypothesized in H4, it is actually the match in linguistic styles, rather than merely the use of some particular style, that has an effect. Here, we rely on the same categories and operationalization outlined for determining the linguistic style of the submitted ideas.

Response has prior duplicate. Organizations vary in the extent to which they standardize their responses to rejections. Standardized responses affect continued interaction for two competing reasons. On one hand, a more commonly used rejection text may signal that an organization has not paid close attention to an idea, which may make a newcomer less likely to continue to interact. On the other hand, organizations may learn that some responses work better than others and, thus, tend to reuse these responses over time. Therefore, we develop a variable that captures whether the exact same response has been used prior to the focal rejection.

Newcomer named in rejection. We create a dummy that takes the value of 1 if an organization uses a contributor's username in the explanation of a rejection. For example, a newcomer named Brad may be named in the response accompanying a rejection as follows: "Hi Brad, thanks for the idea…" In our conversations, we learned that some people appreciate this gesture, while others perceive it as manipulative.

Estimations

We use Cox proportional hazard models and discrete time survival models estimated using both time-invariant and time-varying covariates. Time-varying covariates are important to consider both for the key independent variables and for measuring whether a newcomer's idea is rejected or selected. These models also rule out alternative explanations. For instance,

the number of votes a newcomer receives may capture the degree to which the newcomer feels accepted by other contributors as votes accrue over time. Similarly, the amount of crowding newcomers and their ideas face is constantly ebbing and flowing as new ideas are posted, some ideas are selected, and some ideas are rejected. We split our dataset into monthly records (since more finely grained data would have been too computationally intensive), creating a very large dataset with millions of observations. We could have created this dataset by splitting the data whenever an individual change occurred; however, since we also capture variables (e.g., the tendency to reject) at the organizational level, where there were many changes, this approach would not have saved much computing time. We cluster standard errors at the level of the newcomers to adjust for the fact that we observe each individual over the course of multiple months. The sheer number of observations makes traditional significance tests nearly meaningless (note that the relevant number of observations is the number of newcomers, not the number of newcomer-months). We tackle this issue by interpreting the effect sizes in greater detail, as well as by conducting a robustness check in which we replicate our findings on much smaller samples.

The unit of analysis is the newcomers' monthly activity. A newcomer enters the sample by posting a first idea. Once a newcomer enters the sample, we estimate whether the newcomer will post again. This setup allows us to account for right-censoring, which is common in our dataset because most newcomers submit only one idea. In our analyses, the calendar month during which we first observe a newcomer is set as month zero. Neither the Cox hazard models nor the discrete time survival models have any intercepts, since these are subsumed into the baseline hazard.

We also attempt to address the strategic use of rejections. The core of our argument is that rejections increase the hazard of continued interaction. One threat to our ability to show this effect is the potential for the non-random selection of contributors into treatment groups:

That is, organizations may be more likely to reject ideas whose contributors are more likely to submit a second suggestion. We address this issue by using the inverse probability of treatment weighted (IPTW) approach (Hernán, Brumback & Robins, 2001; Robins, Hernan & Brumback, 2000) to develop weights specific to newcomer-months. This method accounts for the possibility that some newcomers may be more likely than others to receive rejections in a given month. The IPTW approach assumes that newcomers can become either treated or not treated, but that only one of these conditions is observed. The newcomers are weighted by the inverse of the probability that a newcomer will become treated (i.e., rejected). IPTW estimators use estimated probability weights to account for the missing-data problem that stems from each observation being observed in only one of its potential outcomes.

To develop the IPTW, we first develop the denominator by estimating a model to predict the treatment of receiving a rejection using prior history, all time-invariant controls, and all time-varying controls. Second, we develop the numerator to estimate a second model using prior history and the time-invariant controls. Then, we use these results to create stabilized weights for each newcomer and year by dividing the numerator by the denominator (Hernán et al., 2001; Robins et al., 2000). Next, we weight the regressions by controlling directly for the baseline covariates, thus accounting for the potential issue of rejections being used strategically. This weighting methodology only works with discrete time survival models, which we estimate using a logistic regression, since Cox hazard survival models do not allow for time-varying or subject-specific weights (Fewell, Hernán, Wolfe, Tilling, Choi & Sterne, 2004). We report both sets of findings in the results section, as both models have merits and neither is preferable to the other.

RESULTS

The descriptive statistics and their means and standard deviations are summarized in table 1. None of the correlations (available upon request from the first author) are strong enough to raise concerns about multicollinearity.

Insert table 1 about here

Table 2 reports the results for the estimation of the hazard of continued interaction, defined as a newcomer submitting a second idea. Models 1 through 5 show the results of the Cox hazard regressions, and Models 6 through 7 replicate these results with discrete time survival models using the IPTW weights and accounting for the potential strategic use of rejections. It is worth noting the similarity in the results of the Cox hazard and discrete time survival IPTW models, as this increases our confidence in the results. To ease interpretation, control variables are grouped into organization-, newcomer-, idea-, and rejection-level controls. Model 1 is the baseline model and contains only control variables.

Our estimates for the controls are consistent with prior research. Our controls on the level of the organization show that the total number of ideas an organization rejects has a positive effect on newcomers' tendency to submit second ideas, even when it is not the focal newcomers' ideas that are rejected. Of course, how newcomers respond to other contributors' ideas being rejected is not an indicator of how they will respond to their own ideas being rejected. The overall number of ideas an organization selects also has a positive effect, confirming the findings of Dahlander & Piezunka (2014). We further find that crowding positively affects newcomers' tendency to submit second ideas. We also find that as organizations' crowdsourcing initiatives mature, newcomers become less likely to submit additional ideas. Our controls on the level of the newcomer show that if a newcomer does not provide a username and acts anonymously, he or she is less likely to submit a second idea. If the newcomer is employed by the organization, he or she is more likely to submit a second

idea. Support for a newcomer in the form of votes and comments from other contributors render the newcomer more likely to continue to interact. The same is true for newcomers' own votes and comments on other contributors' ideas. This finding suggests that voting and commenting indicate commitment to the crowdsourcing initiative. Our controls on the levels of the idea and the rejection suggest that idea length and certain linguistic styles are both indicative of newcomers' willingness to continue to interact. We also find that using a response that an organization has used before has a positive effect, a finding we attribute (after examining several examples and talking to organizational representatives) to the organization devoting time and effort to develop a high-quality template. Interestingly, using a newcomer's name in a rejection has no positive effect. When we asked contributors about this finding, we learned that contributors often perceive the use of a contributor's name in a rejection as manipulative.

Insert table 2 about here

Model 2 adds a variable reflecting whether a newcomer's first idea is rejected, which highlights the average effect of a rejected idea on the hazard of continued interaction. We also include a covariate for whether a newcomer's first idea is selected. The baseline is no feedback from the organization. This model provides initial evidence that receiving an explicit rejection positively affects the likelihood of continued interaction, although the effect size of a rejection is smaller than that of a selection. Model 3 splits the rejections into two categories: rejections that merely classify an idea as "rejected" (with no explanation) and rejections that provide additional explanations. This model tests Hypotheses 1 and 2.

H1 suggests that an explicit rejection that only notifies a newcomer of the rejection of his or her idea increases the newcomer's willingness to continue to interact with the organization. The coefficient for a rejection without an explanation suggests that the effect is

both significant and economically meaningful. A rejection without an explanation increases the hazard that the newcomer who receives the rejection will continue to interact by 80% (exp(.588)).

H2 extends the reasoning of H1 by proposing that an explicit rejection that includes an explanation increases a newcomer's willingness to continue to interact with the organization more than a rejection that merely classifies the idea as "rejected." Model 3 shows that the effect sizes of rejections both with and without explanations are significant and positive. The effect of a rejection with an explanation increases the hazard of continued interaction by 143% (exp(.890)). In other words, the effect of a rejection with an explanation is significantly stronger than that of a rejection without an explanation (143% vs. 80%, respectively). Further, the coefficients of a first idea rejected with and without an explanation are statistically different. The 95% confidence intervals do not overlap, and a test of the equality of the coefficients shows that, though both coefficients are positive, the effect of a rejection with an explanation is greater. This finding supports H2.

H3 proposes that the degree to which the explanation that accompanies the rejection of a newcomer's idea matches the informational content of the rejected idea increases the newcomer's willingness to continue to interact with the organization. To test this idea, we focus on rejections that include explanations. Model 4 adds rejection-level controls that account for the characteristics of these rejections. Note that the number of observations in this regression is significantly lower than that in other models. This is because the sample is constrained to those ideas that have been explicitly rejected with explanations. Thus, the interpretation of the results of Model 4 differs from those of other models in that the results of Model 4 illustrate differences among rejections based on their respective contents. Model 5 adds the two independent variables of interest: *First idea rejected—explanation matches idea content* to test H3 and *First idea rejected—explanation matches idea style* to test H4.

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The coefficient for *First idea rejected—explanation matches idea content* shows how the degree of content-matching between ideas and responses influences the hazard of future interactions with the organization. This variable is insignificant, meaning that H3 is refuted: The match between ideas and rejections in terms of content has no effect on continued interaction.

H4 proposes that the degree to which the explanation of a rejection matches the linguistic style of a newcomer's rejected idea increases the newcomer's willingness to continue to interact with the organization. The *First idea rejected—explanation matches idea style* coefficient that captures the linguistic similarity between the focal idea and the rejection is highly significant and positive, indicating strong support for H4. Thus, while content-matching (i.e., reusing words from the original idea) has no effect on continued interaction, we find that style-matching (i.e., adopting a similar linguistic style) has a clear positive effect.[18] Conditional on receiving a rejection, a standard-deviation increase in linguistic style similarity increases the hazard of continued interaction by 66%.

Robustness Checks

To increase the strength of our inferences, we conduct several robustness checks. The most relevant robustness checks and post hoc analyses are reported in Models 6 and 7 in Table 2 and in the models in Table 3. Please note that all control variables reported in Table 2 are included in Table 3, but are not reported to conserve space.

Insert Table 3 about here

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[18] In supplementary analyses not reported in this paper, we also test for an interaction effect between content similarity and linguistic similarity and find that this effect is insignificant. We thank an anonymous reviewer for suggesting this.

Interactions with the main effect. It is plausible that the effect of rejections is moderated by characteristics of both the organization and the newcomer. To assess whether this is the case, we include interactions with comments made and received and votes cast and received and with the number of ideas an organization has received, rejected, and selected. These interactions are reported in Model 1 in Table 3. The interactions show that there are positive interaction effects between a rejection of a newcomer's first idea and comments and votes cast. This suggests that a rejection has a more positive effect when a newcomer has commented and voted more on other contributors' ideas. We also find that two organizational characteristics—the amount of crowding and the number of ideas an organization has rejected—have negative interaction effects on how newcomers respond to rejections. This implies that rejections have a weaker effect when competition is higher and when an organization has a history of rejecting ideas.

Replication on enhanced sub-sample. Our data are large-scale, meaning that traditional methods of evaluating significance are less useful. Though the relevant number of observations is the number of newcomers, not the number of newcomer-months, the resulting sample is still very large. Thus, it is important to note that the results of rejections have economically meaningful effects beyond simple significance tests. As another precaution, we re-estimate the results on a smaller and enhanced sub-sample comprising approximately 9% of the full sample. We constructed this sample by matching organizational information using CrunchBase and ZoomInfo (Dahlander & Piezunka, 2014), which allowed us to include additional controls (e.g., organizational size measured by number of employees, funding, and industry dummies). The results are reported in Models 2 through 4 and lend further credence to our conviction that the results are not driven by our large sample size. This claim is further strengthened by the large effect sizes of our coefficients and the findings of similar effects for

the enhanced sub-sample. It is noteworthy that the final model works on a small sample of 3,834 newcomers who have received rejections with explanations.

Unobserved heterogeneity. Though our models contain clustered standard errors at the newcomer level, and though we replicate our findings using IPTW models in which we account for the potential strategic use of rejections, there are other potential ways to rule out unobserved heterogeneity, such as contributors' innate ability. To account for such heterogeneity, we continue our analysis by comparing only those contributors who have submitted more than one idea, including all repeated events. While this analysis drops many observations (since most contributors post only one idea), it allows us to examine newcomer fixed effects and, thus, to control for unobserved newcomer heterogeneity.[19] The interpretation of this analysis differs from those of previous analyses in that this interpretation focuses exclusively on newcomers who have contributed more than one idea and investigates the within-person effect of whether people are more likely to post a second idea after a rejection than before a rejection. Thus, this analysis investigates the effects of initial rejections versus initial selections (while accounting for unobserved heterogeneity) using linear probability regressions and conditional fixed effects. Though this may not be the best model available (given the binary nature of the dependent variable), it does illustrate that our effects hold true in the presence of newcomer fixed effects. In these regressions, we drop all time-invariant variables from the analysis, since these are accounted for by the fixed effects. The results of the analysis confirm our previous results and support the notion that the rejection or selection of a newcomer's first idea affects his or her continued interaction: a conclusion that still holds true when accounting for unobserved heterogeneity, such as innate

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[19] It is possible to include dummies for each individual in Cox hazard regressions; however, since our dataset includes time-varying covariates and more than five million observations, this approach was infeasible on even the most powerful desktop computer.

ability or personality. In sum, the effect of rejections is not driven by any unobserved time-invariant newcomer characteristics.

DISCUSSION

This paper is motivated by question: *How can organizations increase newcomers' willingness to continue to submit ideas when they do not select the newcomers' first ideas for implementation?* Beyond its practical relevance, this question constitutes a theoretical gap unanswered by the extant research on social networks, feedback, or crowdsourcing. We show that newcomers' willingness to continue to interact with an organization depends on the feedback they receive. We also find that receiving an explicit rejection has a positive effect on contributors' willingness to interact with an organization and that this effect is strengthened when the rejection includes an explanation. By examining the content using large-scale content analyses, we find that the ways in which explanations are written matter and that their effect is particularly pronounced when the linguistic style of the explanation matches that of the idea. By contrast, we find that whether the explanation matches the idea in terms of informational content has no significant effect on newcomers' willingness to continue to interact with the organization. Our findings have important implications for research on (1) tie formation, (2) the crowdsourcing of ideas and innovation, and (3) feedback in creative processes.

Tie Formation

We illustrate how ties can form and persist despite an interaction failing to deliver the desired outcome. Prior research has established a strong link between the outcome of prior interactions and actors' willingness to continue to interact (Baum et al., 2005; Clough & Piezunka, 2018; Dahlander & McFarland, 2013; Fernandez-Mateo & Coh, 2015; Sorenson & Waguespack, 2006). We illustrate that even if an initial interaction does not lead to the

desired outcome, the feedback actors provide one another can help them continue the tie formation process by signaling interest, appreciation, and a match. Thus, feedback increases actors' willingness to continue despite a failure to reach the desired outcome. While the focus of our research is on ties that are still in the process of forming, our findings on the importance of feedback when the desired outcome is not reached may extend to established ties, improving our understanding of the maintenance (and dissolution) of such ties (Burt, 2000; Burt, 2002; Fichman & Levinthal, 1991; Kleinbaum, 2017; Seabright, Levinthal & Fichman, 1992).

We extend the research on micro-interactions in the tie formation process and the agency that accrues to actors as a result. Prior work on micro-interactions has focused on the actions of the actors who attempt to initiate ties (Hallen & Eisenhardt, 2012; Ozcan & Eisenhardt, 2009; Zott & Huy, 2007). By contrast, we focus on the responses of the actors who are contacted. Their responses are crucial because the actors who initiate tie formation processes are still evaluating their contacted partners, and their continued willingness to interact with their contacted partners cannot be taken for granted.

Our work also contributes to research on the formation of ties in a virtual context. While tie formation in virtual contexts has become ubiquitous, research has only recently begun to examine virtual social exchanges (Barley, 2015). The virtual nature of these interactions strips away the cues (e.g., age, ethnicity, and gender) on which actors often rely to assess one another. In the absence of these cues, actors put more weight on other cues (e.g., linguistic style) when assessing a match. These other cues are easier to manipulate than traditional face-to-face cues. As a result, virtual actors have far more power to shape how they are perceived. For example, they can manufacture homophily by adapting their linguistic style to match that of their interaction partner.

Crowdsourcing Ideas and Open Innovation

A rich body of research has illustrated the potential of crowdsourcing ideas (Afuah & Tucci, 2012; Felin, Lakhani & Tushman, 2017; Jeppesen & Lakhani, 2010; Majchrzak & Malhotra, 2013; Mollick & Nanda, 2016; Terwiesch & Yi, 2008). We contribute to the emerging body of research that illustrates the challenges organizations face in this crowdsourcing process and explores how to overcome them (Dahlander, Jeppesen & Piezunka, 2019; Lifshitz-Assaf, 2018). In so doing, we help to develop the broader research program on how organizations can incentivize and guide the search for new ideas (Azoulay, Graff Zivin & Manso, 2011; Levinthal & Warglien, 1999; Manso, 2011). While prior research has focused mostly on the activity of generating and selecting ideas (Berg, 2016; Christensen, Nørskov, Frederiksen & Scholderer, 2017; Keum & See, 2017; Piezunka & Dahlander, 2015; Reitzig & Maciejovsky, 2015), we focus on the so far neglected activity of rejecting ideas. When all ideas cannot be selected, we show how providing feedback to newcomers helps organizations keep contributors engaged and generate more ideas.

Scholars in several domains have examined the antecedents of idea generation in such contexts as, for example, organizational networks (Ahuja, 2000; Ahuja & Katila, 2004; Hargadon & Sutton, 1997; Phelps, 2010; Powell, Koput & Smith-Doer, 1996), user and open innovation (Bogers, Chesbrough & Moedas, 2018; Laursen & Salter, 2006; Lettl, Herstatt & Gemuenden, 2006; von Hippel, 1986), individual networks (Burt, 2004; Godart, Maddux, Shipilov & Galinsky, 2015; Rhee & Leonardi, 2018), brainstorming (Girotra, Terwiesch & Ulrich, 2010; Sutton & Hargadon, 1996), and creativity (Amabile, 1983; Gino, Argote, Miron-Spektor & Todorova, 2010). We offer a new perspective on this research by showing how the handling of ideas that are not selected can foster idea generation.

Our study, thus, contributes to the research on contributors' motivations (Boudreau & Jeppesen, 2015; Gallus, 2016; Jeppesen & Frederiksen, 2006; Langner & Seidel, 2015; Nagaraj & Piezunka, 2018; Ren et al., 2012; Ren et al., 2007; Shah, 2006; von Krogh,

Haefliger, Spaeth & Wallin, 2012; Zhang & Zhu, 2011). Prior research on contributors' motivations has identified contributors' relationships with other contributors as an important component. Our study illustrates that it is also crucial for contributors to develop relationships with organizations. Through this lens, idea submission is, in part, a vehicle to attract an organization's interest and initiate a more lasting tie. This implies that organizations may need to devote effort to managing their relationships with individual contributors. Therefore, whereas prior work has often focused on how organizations can manage the crowd as a *whole* (e.g., problem formulation, incentivizing, broadcasting) (Alexy & Leitner, 2011; Boudreau & Lakhani, 2009; Jeppesen & Lakhani, 2010; Lifshitz-Assaf, 2018), our research shows that it is important for organizations to manage their relationships with *individual* contributors.

The last two decades have witnessed a wellspring of research on open models of innovation (Chesbrough, 2003; Dahlander & Gann, 2010; West & Bogers, 2014). This research paints a relatively positive picture of what it means to collaborate with individuals outside the organization. At the same time, engaging in open innovation does not automatically imply that an organization is able to build lasting and fruitful relationships with outsiders. To accomplish this, a crowdsourcing organization must both attract people's interest *and* maintain relationships. There has been a plethora of literature on motivations for attracting contributors, but the relationship dimension has often been overlooked. Our research suggests that if organizations adjust how they handle newcomers, they can reduce the share of "one-hitter" contributors: that is, contributors who submit only a single idea (Bayus, 2013). One-hitters are commonly observed in open innovation settings. Our research suggests that they may arise from unsatisfying experiences during the submission of a contributor's first idea. Organizations are likely to benefit from reducing the share of one-hitters because contributors who continue to submit further ideas are more likely to

eventually submit ideas that are selected for implementation (Conti et al., 2014; Deichmann & van den Ende, 2014; Huang et al., 2014), as well as to engage in activities beyond idea submission, such as helping to evaluate other contributors' submissions (Berg, 2016; Chen et al., 2010; Piezunka & Dahlander, 2015). Our research, thus, offers an important new perspective by showing that, for organizations, the relatively small action of curating rejections can have big effects.

Feedback in Creative Processes

In line with prior research, we underscore that actors seek feedback (Ashford, 1986). In particular, we focus on a neglected type of feedback: rejections. Research on feedback in creative processes tends to focus on how feedback helps contributors develop and refine their ideas (Amabile, 1983; Harrison & Dossinger, 2017; Strang & Siler, 2015). Rejections differ from developmental feedback because they make clear that the focal idea should not be developed any further. However, while rejections may shut down a contributor's first idea, we suggest that they also serve a positive function.

We identify a so far neglected function of feedback: developing relationships. Prior research examines how feedback motivates and guides actors to engage in particular tasks (e.g., Amabile, Barsade, Mueller & Staw, 2005; Audia & Goncalo, 2007). Our research shows how feedback motivates actors to continue their interactions. Whereas, in prior research, the relationships between actors are either abstracted away (e.g., when theories are tested with participants in a lab) or already established (e.g., when theories are tested with organizations' employees as the study sample), our research emphasizes that these relationships are both central and delicate. In our informal conversations, we learned that contributors found developing new ideas innovation fairly easy. In other words, they did not see the task of submitting an idea as a challenge. Instead, the key question for contributors was whether they wished to continue to interact with the organization.

Our study suggests that feedback-providing and feedback-seeking actors conceptualize the act of not providing feedback very differently. In line with prior research, the managers with whom we had conversations were generally unwilling to provide negative feedback (Fisher, 1979) and described their behavior of not giving feedback on non-selected ideas as "giving no feedback" or "not offending [the contributors]." By contrast, contributors described the same behavior as "ignorance" and "arrogance." This difference in how feedback-providing organizations and feedback-seeking contributors conceptualize the behavior of not providing feedback may explain why, in our sample, 88% of ideas received no feedback, despite our finding that negative feedback in the form of rejections has a positive effect.

Our findings also provide insight into how organizations may articulate the explanations accompanying their rejections. While matching in terms of informational content has no significant effect, the effect of linguistic style is both strong and significant. This indicates that, in rejections, *what* is said it is less important than *how* it is said. When sharing our findings with other researchers, we learned that the online retailer Amazon trains its customer service representatives to imitate the linguistic style of customers' requests: a strategy that, according to our findings, may indeed increase customers' willingness to continue to interact with the organization.

Our paper also has important implications for the emerging research on organizations that broaden participation in organizational decision-making (Mack & Szulanski, 2017; Piezunka, Aggarwal & Posen, 2018; Reitzig & Sorenson, 2013; Turco, 2016). While broadening participation in organizational decision-making helps organizational leadership to increase the quantity and diversity of information that is available to them when making decisions, they also face the challenge that a substantial set of organizational members who have engaged on an organizational decision often experience that the organizational

leadership choose an alternative that deviates from the one they suggested. Our paper illustrates the necessity for organizational leadership to manage these organizational members, and suggest that explicitly rejecting them may be a way to foster their continuous participation.

Managerial Implications

Explicit rejections allow managers to foster relationships even when initial interactions do not produce the desired outcome. Conversely, our findings imply that if managers wish to suppress future interactions, they should forego rejections and simply remain silent. Beyond affecting whether and how managers provide feedback after deciding not to pursue an idea, our findings on the positive effect of rejections may also affect organizations' decisions to select or reject an idea. Managers sometimes select ideas not because they are convinced by the idea, but because they wish to maintain a relationship with the idea's originator. Thus, the insight that rejections, as well as selections, can foster such relationships may allow managers greater freedom in rejecting ideas that they may have otherwise selected.

Our research shows not only how managers can best reject ideas (e.g., by providing additional information and using linguistic styles that mirror those used in the ideas), but also how managers can protect their relationships with contributors. Given the potential impact of rejections, rejecting may be an important skill for managers to learn in order to foster future interactions. As venture capitalist Marc Andreessen (2014) points out: "There are about 4000 startups a year that are founded in the technology industry that would like to raise venture capital. We can invest in about 20. So, the fall off is significant. […] Our day job is crushing entrepreneurs' hopes and dreams. We have focused very, very hard on being very good at saying no because that is most of what we do." Our research indicates that managers may use explicit rejections to foster contributors' willingness to continue to engage. Rejections, therefore, may be an activity worth further attention.

Boundary Conditions and Limitations

Our findings may be bounded to settings involving three types of organizational responses (i.e., selection, rejection, and no feedback). In settings involving only selection and rejection, the effect of rejections may differ substantially (Fernandez-Mateo & Coh, 2015; Strang & Siler, 2015). Our findings may also be bounded to settings in which the rejected actor's engagement does not imply major effort. Formulating and submitting an idea using the studied submission software requires only moderate effort. If an engagement requires major effort (e.g., in the case of suppliers participating in a complex call for bids), the effect of a rejection may differ substantially. It may also be crucial for contributors to not identify too strongly with their contributions. In other words, contributors must be able to differentiate between their ideas being rejected and them, personally, being rejected. In other contexts, such as that of job applications, achieving such a separation is likely to be more challenging (Brands & Fernandez-Mateo, 2017; Fernandez-Mateo & Coh, 2015). It may also be necessary for newcomers to easily discontinue their relationship with the organization. If newcomers are tied to the organization in some way (e.g., if the people submitting ideas are employed by the organization), they may continue to submit ideas regardless of the feedback they receive (Deichmann & van den Ende, 2014).

Our research is also subject to limitations. First, organizations' decisions to allocate different kinds of rejections to different newcomers are not random. While we take steps to address this lack of random assignment, we cannot rule out the possibility of unobserved heterogeneity among the newcomers correlated with the distinct types of rejections they receive. Second, we are unable to assess whether the practice of rejecting is beneficial for organizations. While our findings indicate that organizations can foster future interactions via rejections, we cannot say whether the benefits organizations draw from these ideas outweigh the costs they encounter when formulating and sending rejections.

Future Research

Future research could help develop a more fine-grained understanding of what makes a rejection helpful. For example, when we discussed our findings with practitioners who frequently reject complex business proposals, they suggested focusing on single reasons for each rejection, rather than listing all relevant factors. Future research could also explore the degree to which managers can and should adjust their linguistic styles when writing explanations. In our analysis, we examine only whether there is a linguistic match between idea and rejection, not whether organizations create this match consciously. Another area that merits further attention concerns the antecedents of rejections. In our conversations with managers, we learned that managers are inclined to not reject ideas because they do not wish to offend contributors and because they wish to preserve the option of selecting ideas for implementation later. We believe it may also be promising to examine the other effects of rejections. In other analyses not reported in this paper, we find that rejections allow contributors to change the types of ideas they submit and increase their likelihood of having future ideas selected. Future research, therefore, would do well to explore how contributors change the ideas that they submit (e.g., in terms of content and/or style) in response to feedback. Other effects may also play a role. For example, a rejection may affect other contributors' evaluations of an idea. Lastly, it would be interesting to explore whether contributors whose ideas are not get selected try to submit the same ideas to other organizations. In an environment in which boundaries are less strictly enforced than in traditional organizations, it would be relatively easy for contributors to seek recognition for their ideas elsewhere.

CONCLUSION

Actors who attempt to interact with one another often cease interacting when their initial attempts do not lead to desired outcomes. In such cases, relationships tend to die in their

infancy. Our research suggests that actors can salvage such relationships and ignite idea-sharing by carefully handling the rejection of ideas that they do not accept. Thus, our research points to a pool of untapped potential from which organizations may benefit if they devote time and effort to a common, but understudied organizational activity: rejecting.

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LIST OF TABLES

Table 1: Descriptive statistics with means and standard deviations

	Observations	Mean	S.D.	Min	Max
Organizational-level variables:					
Ideas rejected by the organization $_t$	24170521	3.673	24.837	0	770
Ideas selected by the organization $_t$	24170521	5.101	28.768	0	2444
Crowding—ideas proposed to the organization $_t$	24170521	3055.715	6521.29	1	53605
Age $_t$	24170521	22.403	13.445	0	63
Individual-level variables:					
Newcomer anonymity	24170521	0.269	0.444	0	1
Newcomer employed by the organization $_t$	24170521	0.037	0.189	0	1
Comments given $_t$	24170521	0.549	6.124	0	7470
Comments received $_t$	24170521	1.113	21.616	0	10767
Votes given $_t$	24170521	4.57	7.651	0	3438
Votes received $_t$	24170521	13.583	264.28	0	1.51E+05
Idea-level variables:	24170521				
Idea length	24170521	34.231	44.721	0	1840
Analytical thinking	24170521	74.08	28.544	0	99
Clout	24170521	54.624	28.547	0	99
Authenticity	24170521	33.644	36.605	0	99
Tone	24170521	49.363	34.13	0	99
Six-letter words	24170521	22.345	18.187	0	100
Function words	24170521	37.578	19.745	0	100
Pronouns	24170521	8.182	8.231	0	100
Personal pronouns	24170521	4.764	6.116	0	100
Cognitive processes	24170521	10.483	9.183	0	100
Perceptive processes	24170521	2.556	5.532	0	100
Rejection-level variables:					
Rejection length	545176	25.601	26.664	0	752
Analytical thinking	545176	61.525	33.373	0	99
Clout	545176	60.943	32.273	0	99
Authenticity	545176	36.147	36.335	0	99
Tone	545176	51.839	36.347	0	99
Six-letter words	545176	23.324	15.872	0	100
Function words	545176	46.279	18.605	0	100
Pronouns	545176	11.458	9.202	0	100
Personal pronouns	545176	13.254	11.458	0	100
Cognitive processes	545176	2.105	5.474	0	66.67
Perceptive processes	545176	0.022	0.147	0	1
Response has prior duplicate	545176	0.072	0.258	0	1
Dependent variable					
Continued interaction $_t$	24170521	0.004	0.06	0	1
Independent variables					
First idea selected $_t$	24170521	0.087	0.282	0	1
First idea rejected $_t$	24170521	0.036	0.187	0	1
First idea rejected—with explanation $_t$	24170521	0.026	0.159	0	1
First idea rejected—no explanation $_t$	24170521	0.011	0.104	0	1
First idea rejected—explanation matches idea content $_t$	545176	0.088	0.103	0	1
First idea rejected—explanation matches idea style $_t$	545176	0.579	0.256	0	1

Note: All variables with a *t* subscript are time-varying by calendar month. The rest are time-invariant.

Table 2: Cox hazard and discrete time IPTW regressions on continued interaction

	Model 1 Cox	Model 2 Cox	Model 3 Cox	Model 4 Cox	Model 5 Cox	Model 6 IPTW	Model 7 IPTW
Organizational-level variables:							
Ideas rejected by the organization $_t$	0.065**	0.038**	0.035**	0.045**	0.047**	0.038**	0.079**
	(0.001)	(0.001)	(0.001)	(0.008)	(0.007)	(0.002)	(0.015)
Ideas selected by the organization $_t$	0.059**	0.046**	0.046**	0.038**	0.039**	0.051**	0.055**
	(0.001)	(0.001)	(0.001)	(0.015)	(0.014)	(0.001)	(0.017)
Crowding—ideas proposed to the organization $_t$	0.046**	0.089**	0.090**	0.093**	0.089**	0.057**	-0.061+
	(0.003)	(0.003)	(0.003)	(0.025)	(0.025)	(0.005)	(0.037)
Age $_t$	-0.018**	-0.008+	-0.008+	-0.239**	-0.241**	-0.005	-0.113**
	(0.004)	(0.004)	(0.004)	(0.033)	(0.034)	(0.005)	(0.039)
Individual-level variables:							
Newcomer anonymity	-2.289**	-2.315**	-2.310**	-2.466**	-2.450**	-2.251**	-2.104**
	(0.026)	(0.026)	(0.026)	(0.150)	(0.151)	(0.028)	(0.241)
Newcomer employed by the organization $_t$	0.970**	0.932**	0.931**	1.371**	1.391**	1.018**	1.319**
	(0.014)	(0.014)	(0.014)	(0.139)	(0.139)	(0.018)	(0.167)
Comments given $_t$	0.013**	0.012**	0.012**	0.109**	0.108**	0.046	0.696**
	(0.002)	(0.002)	(0.002)	(0.016)	(0.017)	(0.057)	(0.070)
Comments received $_t$	0.007**	0.005**	0.005**	-0.005	-0.006	0.004	0.038
	(0.001)	(0.002)	(0.002)	(0.016)	(0.015)	(0.003)	(0.026)
Votes given $_t$	0.033**	0.033**	0.033**	0.039**	0.040**	0.309**	0.607**
	(0.003)	(0.003)	(0.003)	(0.011)	(0.011)	(0.024)	(0.036)
Votes received $_t$	0.006**	0.005**	0.005**	0.035	0.035	-0.004	-0.170*
	(0.002)	(0.002)	(0.002)	(0.042)	(0.041)	(0.005)	(0.074)
Idea-level variables:							
Idea length	0.248**	0.248**	0.248**	0.214**	0.171**	0.231**	0.280**
	(0.010)	(0.010)	(0.010)	(0.055)	(0.049)	(0.010)	(0.065)
Idea length (squared)	-0.022**	-0.021**	-0.021**	-0.011	-0.008	-0.021**	-0.052**
	(0.002)	(0.002)	(0.002)	(0.010)	(0.008)	(0.002)	(0.018)
Analytical thinking	0.085**	0.079**	0.079**	0.101**	0.094**	0.084**	0.049
	(0.005)	(0.005)	(0.005)	(0.031)	(0.031)	(0.006)	(0.040)
Clout	-0.028**	-0.009*	-0.009*	0.105**	0.106**	-0.017**	0.105**
	(0.004)	(0.004)	(0.004)	(0.025)	(0.025)	(0.004)	(0.033)
Authenticity	-0.040**	-0.044**	-0.045**	0.004	0.006	-0.039**	0.064*
	(0.004)	(0.004)	(0.004)	(0.024)	(0.024)	(0.005)	(0.032)
Tone	0.036**	0.040**	0.040**	-0.009	-0.014	0.037**	-0.030
	(0.003)	(0.003)	(0.003)	(0.022)	(0.021)	(0.004)	(0.029)
Six-letter words	0.040**	0.040**	0.039**	0.103**	0.099**	0.033**	0.186**
	(0.004)	(0.004)	(0.004)	(0.030)	(0.031)	(0.005)	(0.043)
Function words	0.248**	0.238**	0.238**	0.153**	0.109*	0.225**	0.144*
	(0.006)	(0.006)	(0.006)	(0.042)	(0.043)	(0.006)	(0.059)
Pronouns	-0.070**	-0.070**	-0.070**	-0.078	-0.090+	-0.055**	-0.180**
	(0.008)	(0.008)	(0.008)	(0.048)	(0.049)	(0.008)	(0.070)
Personal pronouns	-0.099**	-0.102**	-0.102**	-0.111*	-0.111*	-0.086**	-0.088
	(0.007)	(0.007)	(0.007)	(0.044)	(0.044)	(0.008)	(0.060)
Cognitive processes	0.025**	0.028**	0.028**	0.034	0.036	0.027**	0.038
	(0.004)	(0.004)	(0.004)	(0.025)	(0.025)	(0.005)	(0.031)
Perceptive processes	0.025**	0.020**	0.020**	0.011	0.018	0.025**	0.016
	(0.003)	(0.004)	(0.004)	(0.027)	(0.027)	(0.004)	(0.036)
Negation	-0.063**	-0.065**	-0.065**	0.016	0.013	-0.061**	-0.027
	(0.005)	(0.005)	(0.005)	(0.028)	(0.029)	(0.005)	(0.041)
Rejection-level control variables:							
Rejection length				0.002*	0.002*		0.000
				(0.001)	(0.001)		(0.001)
Analytical thinking				-0.000	-0.001		-0.001
				(0.001)	(0.001)		(0.001)
Clout				0.002*	0.001		0.001
				(0.001)	(0.001)		(0.001)
Authenticity				0.003**	0.003**		0.002**
				(0.001)	(0.001)		(0.001)
Tone				0.001	0.000		0.000
				(0.001)	(0.001)		(0.001)
Six-letter words				0.002	0.003		0.002
				(0.002)	(0.002)		(0.002)
Function words				-0.000	0.000		-0.003
				(0.002)	(0.002)		(0.002)
Pronouns				0.005*	0.002		0.005

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	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				(0.002)	(0.002)		(0.003)
Personal pronouns				-0.006+	-0.006+		-0.007
				(0.003)	(0.003)		(0.005)
Cognitive processes				-0.008**	-0.008**		-0.007+
				(0.002)	(0.003)		(0.004)
Perceptive processes				-0.001	-0.002		-0.004
				(0.005)	(0.005)		(0.007)
Response has prior duplicate				0.264**	0.304**		0.456**
				(0.064)	(0.066)		(0.094)
Newcomer named in response				0.129	0.131		0.087
				(0.110)	(0.112)		(0.156)
Independent variables:							
First idea rejected $_t$		0.860**					
		(0.014)					
First idea selected $_t$		1.013**	1.007**			1.016**	
		(0.010)	(0.010)			(0.012)	
H1: First idea rejected—no explanation $_t$			0.588**			0.703**	
			(0.030)			(0.037)	
H2: First idea rejected—with explanation $_t$			0.890**			0.934**	
			(0.016)			(0.020)	
H3: First idea rejected—explanation matches idea content $_t$					-0.304		-0.043
					(0.234)		(0.308)
H4: First idea rejected—explanation matches idea style $_t$					0.508**		0.629**
					(0.123)		(0.180)
Log likelihood	-1,183,637	-1,177,427	-1,177,374	-22,577,	-22,540	-469,172	-7,943
Number of newcomers	1,336,154	1,336,154	1,336,154	31,475	31,475	1,336,154	31,475
Number of newcomer months	24,170,521	24,170,521	24,170,521	545,176	545,176	24,170,521	545,176

Note: + p < 0.10, * p < 0.05, ** p < 0.01. Two-tailed tests. All continuous variables are standardized. Standard errors are clustered at the individual level in parentheses. (1) Baseline is no response from the organization.

Table 3: Robustness checks and post hoc analyses

	Model 1	Model 2	Model 3	Model 4	Model 5	Model
	Full sample with interactions on main effect	Enhanced sub-sample	Enhanced sub-sample	Enhanced sub-sample	Fixed effects linear prob. model	Fixed effects linear prob. model
First idea selected $_t$	1.010**	0.610**	0.610**		0.289**	0.301**
	(0.010)	(0.046)	(0.045)		(0.005)	(0.003)
First idea rejected $_t$	0.861**	0.470**			0.302**	
	(0.015)	(0.087)			(0.003)	
First idea rejected—with explanation $_t$			0.523*			0.285**
			(0.213)			(0.005)
First idea rejected—no explanation $_t$			0.298*			0.288**
			(0.123)			(0.010)
H3: First idea rejected—explanation matches idea content $_t$				-0.154		
				(0.554)		
H4: First idea rejected—explanation matches idea style $_t$				1.203**		
				(0.309)		
First idea rejected * Comments given	0.032**					
	(0.008)					
First idea rejected * Comments received	-0.008					
	(0.008)					
First idea rejected * Votes given	0.019+					
	(0.011)					
First idea rejected * Votes received	0.02					
	(0.018)					
First idea rejected * Ideas rejected by the organization	-0.021**					
	(0.004)					
First idea rejected * Ideas selected by the organization	0.001					
	(0.007)					
First idea rejected * Crowding—ideas proposed to the organization	-0.027+					
	(0.015)					
Similarity between first idea and second idea						
Inverse Mills ratio						
Additional controls:						
Large organization		0.249**	0.250**	0.435**		
		(0.023)	(0.023)	(0.134)		
VC-funded		-0.123**	-0.124**	-0.055		
		(0.031)	(0.030)	(0.129)		
U.S. location		0.140**	0.141**	-0.147		
		(0.024)	(0.023)	(0.153)		
Industry dummies	No	Yes	Yes	Yes	No	No
Organizational-level controls	Yes	Yes	Yes	Yes	Yes	Yes
Individual-level controls	Yes	Yes	Yes	Yes	Yes	Yes
Idea-level controls	Yes	Yes	Yes	Yes	No	No
Rejection-level controls	No	No	No	Yes	No	No
Number of newcomers	1,336,154	157,893	157,893	3,834	87,063	87,063
Number of newcomer months	24,170,521	3,229,464	3,229,464	63,927	536,590	536,590

Note: + p < 0.10, * p < 0.05, ** p < 0.01. Two-tailed tests. All continuous variables are standardized. Standard errors clustered at the individual level in parentheses. (1) Baseline is no response from the organization. Please note that all control variables reported in Table 2 are included but not reported to conserve space.