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Can Institutional Support Improve Volunteer Quality? An Analysis of Online Volunteer Mentors

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ABSTRACT

Volunteer management practices have been shown to have positive effects on employees in terms of skill development, job success, organizational identity, and morale in the public, nonprofit and corporate sectors. Despite considerable research on volunteering, questions remain about how management practices of volunteer programs may affect volunteer performance. Leveraging data comparing self-enrolled and corporate-recruited volunteer mentors into a large-scale online program for entrepreneurs, this study measures the impact of institutional support on volunteer intensity, persistence, and quality. It also presents a novel way to measure volunteer quality through sentiment analysis to measure the tone of online messages, an emerging statistical technique. Findings suggest that a high level of institutional support leads to higher quality mentor engagement, compared to self-enrolled volunteers, while a low level of support leads to mentor quality much lower than self-enrolled volunteers.

Keywords: Nonprofit, volunteering, mentoring, entrepreneurs

INTRODUCTION

Many organizations recruit and manage volunteers to support their operations or missions, support professional development (through mentoring), or improve relationships with stakeholders. The vast scholarship on volunteering, mentoring and voluntary action has primarily coalesced around three main themes. The first focuses on understanding the motivations of volunteers (Clary et al., 1998; Clary & Snyder, 1999; Lee, 2012; Omoto & Snyder, 2002; Wilson, 2012). A second theme focuses on managing volunteers (i.e. Hager & Brudney, 2004, 2011, 2011; Nesbit et al., 2018). The third theme focuses on volunteer outcomes, exploring volunteer satisfaction, benefits (including health benefits), intention to volunteer again or the benefits to the organization (Barraza, 2011; Dwyer et al., 2013; Ghosh & Reio, 2013; Ivonchyk, 2019; Johnson & Ridley, 2018; Maki & Snyder, 2017; Nencini et al., 2016; Post, 2005; Rodell et al., 2016; Rodell & Lynch, 2015; Stukas et al., 2009; Wilson & Musick, 1999).

Despite this considerable research, we know relatively little about how management practices, specifically how institutional support of volunteers, may affect the *quality* of the volunteering itself. While volunteering is an individual endeavor, it is often managed in institutional settings – whether a nonprofit, public or corporate setting. Some volunteers may be motivated to volunteer by intrinsic rewards, others by extrinsic rewards. Corporate volunteers may have different motives than those who sign up on their own. Yet to date, there has been little research on the quality of a volunteer’s performance as it relates to beneficiaries served by the volunteers. In other words, do some volunteers perform “better” than others? We study this question in the context of volunteer mentoring of entrepreneurs with and without institutional support by building on a conceptual framework of volunteer behavior offered by Rodell et al. (2016). We compare volunteer mentors from two different groups active on the same open-access online mentoring platform. The first group of mentors are those who found the platform on their own and self-enrolled as a volunteer mentor. These mentors receive little to no institutional support from the platform provider. The second group includes volunteer mentors who are recruited and/or supported through a corporate volunteering program. This group of mentors receive varied levels of institutional support from their company towards their efforts. For this group of mentors, we further categorize the support they receive into three levels — from nearly none, to low, and high support. These differences provide a unique opportunity to evaluate differences in behavior between self-enrolled volunteers and those recruited and supported by their employer.

We use data from the more than 2000 mentors who enrolled on the platform between 2015-2017, measuring their longevity as mentors and their level of engagement with entrepreneurs. We also measure the tone of their conversations using the over 100,000 messages

mentors sent to entrepreneurs on the platform using sentiment analysis, an emerging statistical technique. This study makes several important contributions to the literature on volunteering and mentoring. First, we are able to directly compare the behavior between self-enrolled and employer-recruited volunteers engaged in the same activities on the same platform. Second, our findings suggest that volunteer mentors from employee mentoring programs with low levels of institutional support have lower rates of engagement and lower relative volunteer quality compared to self-enrolled volunteers that receive no institutional support. In other words, inadequate or limited institutional support may lead to worse volunteer quality than no support at all – particularly in a corporate volunteer setting. Finally, we add the additional dimension of volunteer quality to the literature and offer a novel way of measuring volunteer quality which future researchers may find useful in their studies of volunteering and mentor engagement. We discuss implications of these findings for both theory and research.

LITERATURE REVIEW

Volunteers and Volunteering

In this study, we focus on the volunteer mentors of entrepreneurs organized by an international nonprofit online mentoring platform. Volunteering is “any activity in which time is given freely to benefit another person, group or cause” (Wilson, 2000, p. 215). While volunteering is, by its nature “unpaid work” (Stebbins, 2013), it also is sometimes called “serious leisure” (Stebbins, 1996) with motivations related to both work and leisure activities. Although volunteering can sometimes be undertaken informally (Cnaan & Amroffell, 1994; Salamon et al., 2017; Wilson & Musick, 1997), volunteering is generally regarded as a *planned*, rather than spontaneous activity, and is often formalized to some extent (Rodell et al., 2016; Wilson, 2000). Mentoring can be one type of volunteering activity. Although mentoring means different things

to different people (Haggard et al., 2011), a useful definition is that mentors are “those with advanced experience and knowledge who are committed to providing upward support and mobility to their protégés’ careers” (Ragins & Cotton, 1999, p. 529). Ghosh and Reio (2013) also found that, generally, mentoring is a reciprocal and collaborative endeavor that can be motivated both by an interest in supporting growth among colleagues as well as career advancement.

Broadly, scholars have found that the motivation to volunteer is driven by a mix of self-interested and altruistic motives that may not be even known to the volunteer (Holt, 2019; Perry et al., 2008; Cnaan and Goldberg-Glen 1991; Hustinx, Cnaan, and Handy 2010). Although there are some similarities between corporate volunteers and more traditional community volunteers, there are some known differences between these two groups. In particular, the motives of volunteering of those in corporate volunteering programs may be affected by the presence of extrinsic rewards offered by their employer, including employer recognition, job success (Booth et al., 2009) or the development of important job skills (Peterson, 2004). In addition, research on the outcomes of corporate volunteering has most often focused on employee commitment to their company or job satisfaction, not the outcomes of their work on behalf of beneficiaries (Gatignon-Turnau & Mignonac, 2015; Haski-Leventhal et al., 2019; Peterson, 2004). As Grant (2012, p. 594) stated, “In other words, the motives that employees expect to fulfill through corporate volunteering may be shaped by their jobs,” and less, perhaps, by the nonprofits or community members they are serving.

Institutional Support for Volunteers and Volunteer Mentors

Wilson (2012) suggests that while volunteers appreciate the autonomy volunteering provides, they often struggle with a lack of structure. Indeed, the volunteer management and mentorship literatures both recognize that volunteers and mentors often need institutional support

to be successful and satisfied in their roles. If they are not satisfied, they are less likely to continue (Chacón et al., 2007; Hager & Brudney, 2004, 2011; Vecina et al., 2012; Wilson, 2000). Jensen and McKeague (2015) found that offering clear structures, policies, and procedures resulted in higher rates of satisfaction among volunteers. Nelson et al. (2007) suggested that a lack of organizational support was a main reason for volunteer turnover. Studies of workplace volunteering show similar results, with job characteristics, workplace context and organizational support considered important determinants of employee volunteering (Pajo & Lee, 2011; Rodell et al., 2016).

Studies have also found that institutional commitment and support offered to mentors can affect the success and perceived benefits of a mentor program. For example, Aryee, Chay and Chew (1996) found that institutional characteristics like the potential for promotion and opportunities for workplace interactions were important determinants of the motivation to mentor in the workplace, especially for employees with relatively lower levels of altruism. In addition, individuals who felt that their organization cared for them were also more likely to support the development of other employees (Hu et al., 2014).

However, the relationship between institutional support and real or perceived pressure to volunteer (i.e. being “voluntold”) is a fine line, where extensive institutionalizing of rules and procedures may reduce or “crowd-out” the motivation to volunteer (Rodell et al., 2016). Under certain conditions, individuals may, in fact, react negatively to employee volunteer schemes (Li et al., 2017). Similarly, those who perceive volunteering to be mandatory may be less inclined to volunteer in the future (Stukas et al., 1999). Employees have also been seen to react negatively to corporate volunteering programs when they are perceived to only be a public relations operation (Gatignon-Turnau & Mignonac, 2015). In a mentoring context, mentors who participate

voluntarily have been found to invest more in their mentees, while those who have been recruited may resist participation (Lee et al., 2000), may feel burdened by the process (Scandura & Williams, 2002), or even be resentful (Kram & Hall, 1996). Parise and Foret (2008) found that voluntary participation in a formal mentoring program was related to a perception that it was a rewarding experience, while those who felt compelled to participate saw it as “more trouble than it was worth” (p. 225).

Thus, while institutional support is critical, volunteer managers need to find a balance between structure and support. On the one hand, they may need to be careful not to over-structure their volunteering programs or otherwise make people feel coerced to participate. On the other hand, prior research has largely recognized the important role that institutional supports have in recruiting and maintaining volunteers. Similarly, proper support of mentors has been found to improve their satisfaction and longevity in their role, thus benefitting those being mentored.

Conceptual Framework and Hypotheses

A question that has not been asked sufficiently in the literature is, are there differences between self-motivated volunteers and those that have been recruited in a corporate volunteer program? Furthermore, do different levels of institutional supports increase the *quality* of volunteering or mentoring? For one, those who have limited personal motivation to volunteer may never sign-up without recruitment or institutional support to keep them engaged. Second, unsatisfied or unmotivated individuals may still volunteer, but their performance may be affected by institutional factors – such as the level of effort they expend in their volunteering, or the quality of their work. While little is understood about how a volunteer’s enthusiasm (or lack thereof) while volunteering may affect the outcomes of their activity, less is understood about

how institutional structures and support may increase or impede a volunteer's performance in terms of quality.

In this study, we build on a theory of the motivation of work offered by Pinder (1998). Pinder defined work motivation as “a set of energetic forces that originate both within as well as beyond an individual's being, to initiate work-related behavior....” (1998, p. 11). This argument suggests that individuals invest time in work in order to meet physical, cognitive, emotional, social or cultural needs. These needs provide the “energizing force” that directs individual action. Specifically, it considers the *direction*, *intensity*, and *persistence* in an individual's behavior. It therefore describes what a person is motivated to do, why they are motivated to do it, how hard they will work and when they will stop (Meyer et al., 2004).

Pinder's theory of motivation has been applied to volunteering (see, for example Cláudia Nave & do Paço, 2013; do Paço et al., 2013). In Rodell et al.'s (2016) extension of Pinder's theory to employee volunteering, *direction* refers to the decision to volunteer over engaging in another opportunity, such as leisure or work. Questions of who chooses to volunteer, why they choose to volunteer, and their recruitment, falls into this category. *Intensity* captures the extent or frequency of engaging in volunteering. A volunteer has signed up to help. What types of tasks are volunteers asked to do? What may be some differences between those that volunteer for a single event compared to those that volunteer regularly? Finally, *persistence* is a measure of the length of time of the activity. It is this area of research where questions on the impact of volunteering on the volunteer may be considered, as well as the intention to continue or leave the volunteer position (Rodell et al., 2016) .

While there is some concern that compelling people to volunteer can crowd out volunteer motivations, the general consensus found in volunteer management is that support is necessary

for successful outcomes in volunteering. If a volunteer is not adequately supported, we argue that it is likely that the *intensity*, the *persistence*, and most importantly, the *quality* of a mentor's behavior will also suffer. While intensity and persistence can be associated with volunteer quality, particularly in a mentoring relationship, we also conceptualize *quality* in this study as the tone of the interactions between mentors and entrepreneurs in messages sent by mentors on the platform. Mentorship is therefore distinct from other forms of support such as coaching or instruction, in which more structured instruction or teaching is provided (Megginson, 1988; Orth et al., 1987). Thus, mentorship by nature, is meant to be supportive, rather than instructive or overly critical (Young & Perrewé, 2000). The more subjective or supportive the tone is (compared to an objective or even a negative tone), the higher quality that mentoring can be considered to be. This can impact the entrepreneur who is looking not just for technical expertise from a mentor, but often moral support and encouragement (St-Jean & Audet, 2012).

Following Rodell et al.'s (2016) guidance to measure volunteer direction, intensity, and persistence, we therefore add an additional dimension – *quality*. We omit *direction* in the current study as all volunteer mentors in our sample have already made the decision to volunteer by enrolling with the platform provider.

We thus offer the following hypotheses:

Hypothesis 1 (Intensity): Volunteer mentors with institutional supports will have higher intensity (as measured by mentor-mentee connections) than those without institutional supports.

Hypothesis 2 (Persistence): Volunteer mentors with institutional supports are more likely to show persistence over time than those without institutional supports.

Hypothesis 3 (Quality): Volunteer mentors with institutional supports will have higher quality interactions with entrepreneurs than those without institutional supports.

DATA AND METHODS

Research Setting

This study was conducted in partnership with an international nonprofit organization offering a free online mentoring platform for emerging entrepreneurs. While the organization in this study is based in the United States, it is used by mentors and entrepreneurs around the world. The platform is offered in English, French and Spanish, although we only use data from mentors who use the site in English. Unlike many other online mentoring programs, this platform is open to the general public. Entrepreneurs and mentors register on the platform by creating an online profile of themselves, provide their expertise and their needs (entrepreneurs) or what they can offer others (mentors).

While all mentors interact with entrepreneurs in identical ways on the platform, mentors come to the site in two distinct ways. The first group finds the site on their own and enrolls themselves in the site as a mentor. This self-selected group receives almost no ongoing institutional support. They may receive occasional queries from the platform provider asking if they are currently mentoring individuals they had connected with, but they do not receive additional training. They also do not receive any benefits (such as recognition) for their volunteer efforts.

The second group is organized through a small set of firms that collaborate directly with the platform provider to provide their employees volunteer opportunities. The data allow us to further divide employer-supported mentors into subgroups based on three different *levels* (or

intensity) of firm support. The first subgroup of *no-touch* firm-recruited volunteer mentors do not receive any institutional support from the platform provider and/or the firm. The second subgroup, *low-touch* volunteer mentors, often receive targeted recruitment efforts from their firm and are provided basic training by the platform provider. The third group, *high-touch* firms, are those where mentors receive more intensive institutional support from the platform provider, starting with a formal “Discovery and Design” meeting to understand the firm’s motivations for developing a volunteer mentor program for their employees. Based on this assessment, these high-touch firms receive additional user-orientations for their volunteers in the form of webinars or videos, a branded landing page to access the platform, more customized communications like welcome calls and email newsletters, and more engaged troubleshooting. It can be assumed that all client firms receive at least minimal support from their firm since they have intentionally launched this program to provide volunteer opportunities for their employees. Figure 1 graphically represents the four different groups.

[Figure 1]

Sample for Analysis

This study makes use of the 2,344 volunteer mentors who created a profile online between 2015-2017, and who chose to use the site in English. Between the time they enrolled and May, 2018 these mentors sent 126,027 messages to entrepreneurs through the platform, enabling us to measure intensity, persistence, and quality of mentor behavior as they interacted with entrepreneurs on the site.

Dependent Variables

Intensity. First, we measure the *intensity* of the mentor's efforts by evaluating the frequency of their activity on the platform. Their *Number of Conversations* measures the total number of conversations a mentor has on the platform – measured by the number of dyadic relationships. In other words, how many entrepreneurs they had conversations with. However, a conversation could be initiated by either an entrepreneur or a mentor. To further evaluate intensity, *Number of Mentor Initiated Conversations* represents the total number of conversations that are initiated by a specific mentor.

Persistence. Second, we evaluate whether institutional support affects the mentor's *persistence* in volunteer mentoring.

$$persistence_i = \frac{\text{Days on the platform}}{SD(\text{Gap Days})}, \text{ for } i = 1, \dots, n$$

We define the persistence of a *Mentor_i* as someone who is constantly interacting with entrepreneurs over a period of time. We recognize that both the length of time of activities and the constant interactions matter for persistent behaviors. A mentor may interact with entrepreneurs bi-weekly, but the interactions last for only a month. Alternatively, a mentor may be on the platform for more than a year but interacts with entrepreneurs only once or twice. Mentors in these two cases are not considered persistent in their volunteering activities. Therefore, we measure persistence by meeting both criteria: those who interact with entrepreneurs *bi-weekly* on the platform for *more than a year*. Days on the platform is defined as the number of days between the date we obtained the data (May 21, 2018) and a mentor's registration date on the platform. We define *gap days* as the number of days between two instances of a mentor's interaction with entrepreneurs on the platform. For example, if a mentor

interacts with entrepreneurs on Day 1, 3, and 9, the number of gap days are 2 and 6 respectively. The standard deviation of gap days will therefore reflect a mentor's consistency on the platform - consistently active mentors will have a smaller standard deviation of gap days, while more sporadic mentors will show a larger standard deviation. Once we consider the time spent on the platform, a persistent mentor will have a persistency score that is close to their days on the platform because the standard deviation of gap days is small. Conversely, a sporadic mentor could have a persistency score close to 1 because the standard deviation of gap days could be large. Due to the skewness of the distribution, we log-transformed this variable in our models. In short, higher values indicate higher levels of persistence.

Quality. We evaluate the *quality* of a mentor's behavior in three ways. First, we begin with examining whether the mentor is able to develop a meaningful connection with an entrepreneur. Since individuals and mentors may only communicate once or twice with each other, we include the binary variable *Having Connection (Yes=1)*, for those who have four or more messages between a mentor and entrepreneur. Second, we consider the exchange of private contact information – such as sharing an email address or private phone numbers -- as an indicator of a higher quality relationship. *Having Mentor Personal Info Exchanged (Yes)* is a binary variable coded as 1 when a mentor gives their private contact information at least once; and 0 otherwise.

Finally, we are interested in whether mentors with different levels of institutional support behave differently in their conversations. We apply the emerging technique of sentiment analysis, which evaluates the attitude and tone in a message, on the messages sent by mentors on the platform. Sentiment analysis has been used in analyzing Twitter data on political issues and in assessing movie reviews (Kouloumpis et al., 2011; Sarlan et al., 2014). In this study, we use

TextBlob, a Python package that provides a sentiment analysis tool trained from US movie reviews, to produce two indicators — *polarity* and *subjectivity*. Polarity measures the level of positive or negative expression in a message, ranging from -1 to 1. Extremely positive messages receive a score of 1, and extremely negative messages receive a score of -1. Subjectivity evaluates the extent of subjective words used in a message, ranging from 0 to 1. If a message includes mostly objective words, it will get a score closer to 0. Using this tool, we create two variables that distinguish how mentors with different levels of institutional support are interacting with entrepreneurs. *Average Conversation Polarity* represents the average polarity score from all messages sent by a mentor. Similarly, *Average Conversation Subjectivity* represents the average subjectivity score from all messages sent by a mentor. Higher values in a conversation's polarity and subjectivity indicate more supportive and “warmer” conversations between a mentor and entrepreneur.

Independent Variables

Our primary explanatory variables are those that indicate whether mentors received institutional support as part of their volunteer experience. *Organization Client Program (Yes)* indicates whether or not the mentors were self-enrolled or were part of an employee volunteer program (0 = self-enrolled, 1 = client program). Second, we describe whether these were no-touch, low-touch or high-touch clients (namely, receiving no, relatively less or relatively more institutional support). Other control variables include the mentor's gender, age, years of business ownership, the stage of venture development that a mentor is comfortable of mentoring, and whether a mentor provides a profile picture.

FINDINGS

Descriptive statistics

Table 1 presents the summary statistics and the correlation matrix of the variables in this study. The mean number of conversations is 8.61 with a minimum of 1 and a maximum of 325, indicating potential over-dispersion. Mentors initiate 2.64 conversations on average, but some mentors do not initiate any conversation at all. The percentage of having a meaningful connection and the percentage of mentors giving away private contact information is 0.48 and 0.47 respectively, suggesting that almost half of the mentors are willing to build a connection with at least one entrepreneur. In terms of communication style, the average polarity score is 0.23, indicating a slightly positive tone in their messages. The average subjective score is 0.42, suggesting that more objective words are used on average. The mean persistence (log-transformed) is 1.02 and the median is 1.10, suggesting that the majority of the mentors on the platform are not very persistent.

[Table 1]

To measure the institutional support received by the mentor, we use a range from one to four to indicate the four categories in the summary statistics (1 = self-enrolled individuals, 2 = no-touch organizations, 3 = low-touch organization and 4 = high-touch organizations). More than half of the mentors are self-enrolled, and this is considered the reference group in subsequent models – allowing us to compare mentor engagement for four different categories of mentors who are serving the same population of entrepreneurs. The population of the mentors in this study has a mean age at 39.5 years old. Thirty-three percent of them are women, and more than eighty percent of the mentors are willing to provide a profile picture. Given the seniority of

this group, it is not surprising to observe that the mentors have 5.9 years of business ownership on average and prefer to mentor ventures at more mature development stages.

Analysis

We use negative binomial models for dependent variables of *Intensity* because they consist of the count data (*Number of Conversations* and *Number of Mentor Initiated Conversations*). Negative binomial models are suitable for count data with overdispersion. The model of *Intensity* for mentor i is specified as follows¹.

$$\ln(DV_{Intensity_i}) = \text{intercept} + b_{Org.Program_i}X_{Org.Program_i} + b_{(controls_i)}X_{controls_i}, \text{ for } i = 1, \dots, n$$

We use logistic regression models for the two *Quality* dependent variables (*having a connection* and *exchange information*) because they are coded as binary variables. The probability for mentor i to form a connection or to exchange private information is specified as follows.

$$\text{Probability}(DV_{Quality} = 1) = \text{intercept} + b_{Org.Program_i}X_{Org.Program_i} + b_{(controls_i)}X_{controls_i}, \text{ for } i = 1, \dots, n$$

Finally, we use tobit models for the *subjectivity*, *polarity*, and *persistence* measures because they are variables censored on the left. The models are specified as the following.

$$DV_{Subjectivity_i/Polarity_i/Persistence_i} = \text{intercept} + b_{Org.Program_i}X_{Org.Program_i} + b_{(controls_i)}X_{controls_i}, \text{ for } i = 1, \dots, n$$

¹ *org.program* represents the independent variable of interest, *Organization Client Program (Yes)* and the three levels of institutional support. This specification is the same across all models.

Intensity

Our first set of models present the number of conversations and that of mentor-initiated conversations, and hypothesis 1 is supported. Table 2 presents four negative binomial models. In the first two models, we focus on the association between the client program and the two dependent variables: *Number of Conversations* and *Having a Connection*. In the other two models, we replace the client program variable with the variable indicating the level of institutional support they receive.

We find a statistically positive association between *Organization Client Program (Yes)*, and the number of conversations, including total and mentor-initiated. This finding suggests that compared to self-enrolled volunteer mentors, mentors from organizations that promote volunteer mentorship show higher intensity. They have more conversations overall and proactively initiate more conversations. We get a more nuanced picture when we break down the *Organization Client Program* variable into no-touch/low-touch/high-touch. Model 3 and Model 4 show that compared to self-enrolled volunteer mentors, corporate mentors with no institutional support (no-touch) have more total conversations (0.397, $p = 0.000$) and more self-initiated conversations (0.658, $p = 0.000$) compared to self-enrolled mentors. In fact, the results show that this group of mentors demonstrate the highest intensity in online mentoring among the four groups. In contrast, mentors from low-touch organizations have fewer total conversations (-0.214, $p = 0.072$) and fewer self-initiated conversations (-0.120, $p = 0.597$) compared to self-enrolled mentors. While mentors from high-touch organizations have more total and self-initiated conversations than the self-enrolled volunteer mentors, the effect size is comparable to those from organizations with no service at all. Running two F-tests on the equality of the coefficients, we find that mentors from no-touch organizations have more total conversations than mentors

from high-touch organizations (Chisq = 5.289, $p = 0.021$) and the same number of self-initiated conversations (Chisq = 0.180, $p = 0.672$).

[Table 2]

We do not see any statistically significant association between age and the total number of conversations or mentor-initiated conversations. However, female mentors initiated fewer conversations than male mentors. Having a profile picture (*Having photo*) is positively associated with the number of total conversations but not with the number of mentor-initiated conversations, suggesting that providing a picture may make a mentor more approachable. Finally, we find statistically significant positive associations between years of business ownership, as well as mentoring stage, with the number of conversations (total and mentor-initiated).

Persistence

We then examine mentors' level of persistence in volunteer mentoring and find support for hypothesis 2. Table 3 presents two models with the dependent variable *persistence* in the same manner as in the previous tables. Model 2 breaks down the binary variable into the service levels. The first model indicates that mentors from organization client programs are more persistent on average (0.114, $p = 0.043$), compared to self-enrolled mentors. We find that mentors from high-touch organizations have a statistically significant higher level of persistence than the other groups (0.303, $p = 0.0013$). We conduct two F-tests on the equality of coefficients between the high- and low-touch group and that between the high- and no-touch group. The results show that the coefficients are statistically different (Chisq = 5.4375, $p = 0.020$ for high-no touch comparison and Chisq = 3.5807, $p = 0.0585$ for high-low touch comparison). We do not

find statistically significant differences in coefficients between low-touch and no service groups (Chisq = 0.000, p = 0.9805).

[Table 3]

We do not find gender differences in the level of persistence. Instead, we find a positive and statistically significant association between the level of persistence and age, showing photos in the profile, and years of business ownership.

Quality

Finally, we turn to assessing the quality of mentor engagement and first turn to the chance of building connections, finding mixed results to hypothesis 3 with an interesting relationship between support and quality. We present four logistic regression models in Table 4 similar to Table 2. The two dependent variables are *Having Connection (Yes)* and *Having Mentor Personal Info Exchanged (Yes)*.

[Table 4]

We do not find a statistically significant association between *Organization Client Program (Yes)* and the chance of building a successful connection (0.181, p = 0.102.). Instead, mentors from organization client programs are more likely to give mentees their personal information (0.201, p = 0.071), compared to self-enrolled mentors. Model 3 and Model 4 show that only mentors from high-touch organizations are more likely to build a successful connection (0.504, p = 0.008) and give mentees their private contact information (0.417, p = 0.027). We do not see statistically significant association in the other two groups.

Finally, we examine mentor quality by looking at the sentiment of the messages exchanged. Table 5 presents four models similar to Table 2 and 3 but with the two dependent variables, *Average Conversation Polarity* and *Average Conversation Subjectivity*.

[Table 5]

We find that female mentors in general use more positive and subjective words in their messages than male mentors. However, the first two models indicate that mentors from organization client programs use fewer positive words in their messages on average (-0.018 , $p = 0.004$) and are more objective (-0.023 , $p = 0.001$), comparing with self-enrolled mentors. Looking at high-touch/low-touch organizations, we find that the effect seems to be driven by mentors from low-touch firms. Mentors from this subgroup have lower polarity values. In other words, they use less positive (-0.060 , $p = 0.000$) and more objective (-0.078 , $p = 0.000$) words. Two F-tests on the equality of coefficients between the low-touch subgroup and the no-touch subgroup show that the coefficients are statistically different ($\text{Chisq} = 10.091$, $p = 0.001$ for Polarity and $\text{Chisq} = 13.868$, $p = 0.000$ for Subjectivity).

DISCUSSION AND CONCLUSION

Our study makes several important empirical and theoretical contributions to the literature on managing volunteers and entrepreneurial mentoring. First, we integrate the literatures on volunteer management and mentoring and argue that neither literature satisfactorily considers the role of volunteer *quality* on program success. While the idea of *quality* may be somewhat ambiguous, it becomes even more important to assess when volunteers are expected to draw on their own skills and knowledge (as opposed to volunteering time in tasks that do not require specific skills or interaction with beneficiaries). We find that differences in volunteer quality can exist, and that different motivations to participate and the level of institutional

support has an impact on quality. Second, we build on Pinder (1998) and Rodell's et al.'s (2016) conceptualizations of volunteering by adding the dimension of *quality*. Our study also offers one innovative way to measure volunteer quality through sentiment analysis, demonstrating how online conversations can be distinct in tone, where more objective and less “warm” conversations could have a negative impact on entrepreneur morale.

We find that mentors from corporate volunteer programs behave differently from self-enrolled mentors. Note here that the mentors in our sample, regardless of how they signed up, were engaged in the same tasks on the same platform. Our sample included mentors from two distinct groups: self-enrolled mentors and those who were recruited as corporate volunteers. Our results show that the two groups act quite differently carrying out the same tasks, providing evidence for differences in underlying motivations. Previous literature on volunteers had found that corporate volunteers and other types of volunteers may share some motivations. However, those who are recruited through their employer may also be seeking additional extrinsic job benefits, including career advancement and recognition (Gatignon-Turnau & Mignonac, 2015; Peterson, 2004). In other words, the relationship between the corporate volunteer and their volunteering may be motivated by their relationship with their employer.

Second, we found that corporate volunteer mentors also behave differently as a group, based on the level of institutional support they receive. While mentors from organizations without any support (no-touch organizations) demonstrate a similar level of pro-activeness compared to those from high-touch organizations in terms of the number of conversations, they tend to use less positive and more objective words in their messages. These messages are also less positive and more objective than self-enrolled volunteers and may sound “cold” to entrepreneurs. Those who volunteer on their own may be reflecting more altruistic or intrinsic

motivations, while those recruited through their employer may be participating simply because they are asked to. The extra support that high-touch corporate volunteers receive thus incentivizes increased quality, which not only influences the intensity and persistence of their mentoring behavior, but also the quality of the activities.

Third, the “u-shaped” relationship between institutional support and performance is also an important contribution to the literature. Since self-enrolled mentors that come to the site on their own are likely to be self-motivated, it is not surprising that they are active and persistent on the site, and this finding is consistent with our hypotheses. However, it shows a surprising relationship between institutional support and corporate volunteer outcomes. In fact, this finding suggests that poor institutional supports may have a negative impact on volunteer outcomes in employee volunteer programs. Similarly, mentors at high-touch organizations perform well, and also appear to provide “warmer” feedback to mentees. However, low or no-touch groups show the least intensity, persistence, and quality mentoring. In fact, low-touch mentors “perform” worse than no-touch corporate volunteer mentors. This provides evidence that a lack of *effective* institutional support may decrease the motivation to volunteer. While this is consistent with the literature which argues that institutional support is necessary to support volunteer satisfaction and intention to continue (Hager & Brudney, 2004), our findings add nuance to the theoretical implications of volunteer management programs. Employees may sign up because they are asked or expected to, but then are given minimal support or benefits. Our findings provide evidence that simply asking, but not supporting, volunteers in a corporate setting may in fact lead to worse outcomes. In addition, while Gatignon-Turnau and Mignonac (2015) and Li et al (2017) argued that inadequate support can lead to worse organizational outcomes including satisfaction and organizational commitment, we show that it also leads to worse volunteer quality which will

impact beneficiaries. However, questions remain about which types of support or benefits may be more effective in incentivizing high quality volunteering than others, particularly in a corporate volunteering context.

This research does have some limitations, which should be noted. First, this study was not able to ask the mentors themselves specifically about their motivations or engagement. Instead, we use the activity of the volunteer mentors as proxies. Future research would benefit from specifically measuring motivation and satisfaction to better understand volunteer behavior and quality of volunteering in relation to the support they receive. However, our results indicate that corporate and self-enrolled volunteers look and behave differently in their volunteering, which may relate to their motivations to volunteer. Future research may also want to consider the quality of institutional support as a determinant of effective volunteer performance, in both the nonprofit sector and among corporate volunteer programs.

The findings from this study also may have significant implications for managers of volunteer programs across public, nonprofit and business sectors. To make the best use of organizational capacity to support volunteers and voluntary action, our analysis suggests that managers would benefit by committing more organizational resources to volunteers. Otherwise, the effort may be only modestly successful, at best. This is particularly acute in the business sector, where weak support may lead to worse outcomes than no support at all. Finally, we illustrated one way to measure volunteer quality in this study, by measuring the sentiment of communications between volunteer mentors and entrepreneurs. Future research can further engage in questions of how organizations can better incentivize volunteer performance, and how performance can be evaluated and measured.

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Appendix 1 - Validation of Sentiment Analysis

The sentiment analysis package provided in TextBlob is trained from movie reviews. Therefore, there may be a concern that it cannot assess the sentiment expressed in messages exchanged between entrepreneurs and mentors. To address this potential concern, we validated the measures by comparing the outputs from the package with an evaluation done by human raters. We randomly picked 2,000 messages out of 126,037 conversation messages in English and asked three graduate research assistants to categorize the messages into four categories: positive, negative, neutral/objective, and ambiguous. Following the practice described in Baqapuri's (2015) report, we instructed the research assistants to codify the messages with the following criteria.

- **Positive:** If the entire message has a positive/happy/excited/joyful attitude or if something is mentioned with positive connotations. Also, if more than one sentiment is expressed in the message but the positive sentiment is more dominant. Example: "You have accomplished a lot so far. Good job!"
- **Negative:** If the entire message has a negative/sad/displeased attitude or if something is mentioned with negative connotations. Also, if more than one sentiment is expressed in the message but the negative sentiment is more dominant. Example: "Sorry - I'm probably looking to help someone a bit more established right now and local to the area."
- **Neutral/Objective:** If the creator of a message expresses no personal sentiment/opinion in the message and merely transmits information. Advertisements of different products would be labelled under this category.

Example: “First I share with you some online pages/articles about Iran and travel to it: CNN's popular article: [PERSONAL WEBSITE]”.

- Ambiguous: If more than one sentiment is expressed in the message which are equally potent with no one particular sentiment standing out and becoming more obvious. Also, if it is obvious that some personal opinion is being expressed here but due to lack of reference to context it is difficult/impossible to accurately decipher the sentiment expressed. Example: “I kind of like heroes and don’t like it at the same time...”.

The final category is determined by the consensus of the raters, defined as the category upon which two or more raters agree. We had 1,633 messages with two raters assigning the same category, an 82.98% consensus rate. We then reviewed the remaining messages that do not have an agreed-upon category and determine the category for the analysis. Finally, we use the package to generate the polarity and subjectivity scores. The average scores by category are presented in Table 6.

[Table 6]

Table 6 shows that positive and neutral messages account for 91% of the sample. This finding is not surprising because we expect people to interact with each other politely when they seek advice or consult others. We then conduct a series of t-tests to see if the package is able to distinguish one category from the other. The results are summarized in the second half of Table 6.

In terms of polarity, the package is able to separate positive messages from the other three categories. The mean polarity score of positive messages is significantly higher than those

of the other three. However, the scores for the remaining three categories are not statistically distinguishable. This finding is consistent with the observation that the majority of messages are either positive or neutral. It is rare to see people express strongly negative emotions in business conversations.

In terms of subjectivity, we observe a similar pattern except for that positive and ambiguous messages are not statistically different. This should not be a surprise either according to our coding instruction. A message is coded as ambiguous because it expresses positive and negative emotion in an equal weight. Therefore, it should score high in subjectivity. The finding that negative and neutral/objective messages are not statistically different from each other also suggests that negative messages we see from the sample are not really “negative” but more of “objective.”

Overall, this analysis provides face validity of our construct. While the package is not trained for this study specifically, we are confident that it is able to evaluate sentiments expressed in the message exchanged between mentors and entrepreneurs.

Figure 1: Description of Groups

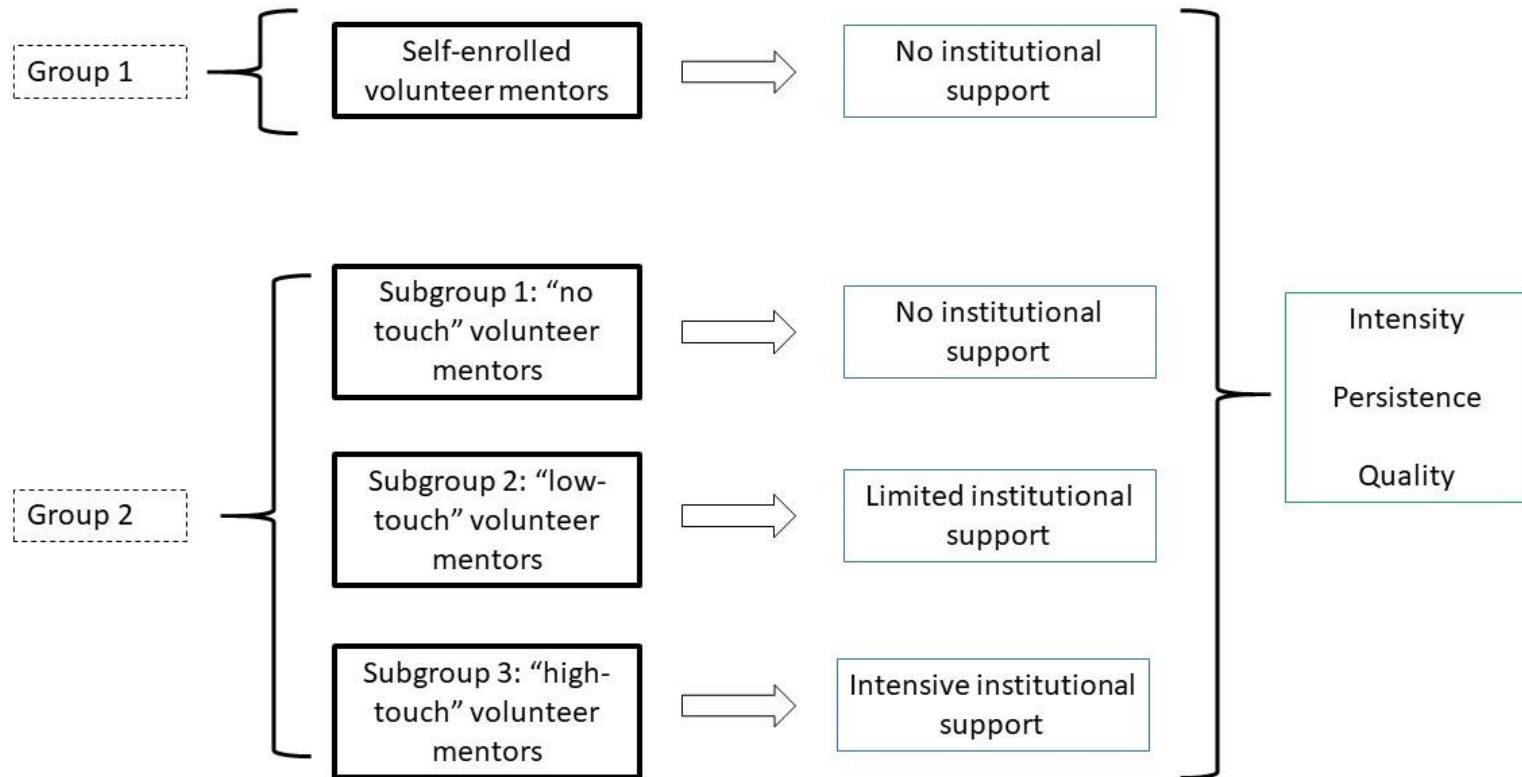


Table 1 - Summary Statistics and Correlation Matrix (N = 2,344)

	Mean	SD	Median	Min.	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Number of Conversations	8.61	17.06	4.00	1.00	325.00	1.00													
2. Number of Mentor Initiated Conversations	2.64	11.24	0.00	0.00	317.00	0.78	1.00												
3. Having Connection (Yes)	0.48	0.50	0.00	0.00	1.00	0.30	0.18	1.00											
4. Having Mentor Personal Info Exchanged (Yes)	0.47	0.50	0.00	0.00	1.00	0.29	0.19	0.57	1.00										
5. Average Conversation Polarity	0.23	0.11	0.23	-0.35	1.00	0.03	0.01	0.07	0.06	1.00									
6. Average Conversation Subjectivity	0.42	0.12	0.43	0.00	1.00	0.04	0.00	0.03	0.01	0.58	1.00								
7. Persistence	1.02	0.78	1.10	0.00	5.88	0.57	0.41	0.66	0.61	0.04	0.03	1.00							
8. Organization Client Program (Yes)	0.17	0.38	0.00	0.00	1.00	0.04	0.06	0.03	0.03	-0.06	-0.07	0.05	1.00						
9. Service Level (No-, low-, high-touch)	1.31	0.78	1.00	1.00	4.00	0.02	0.05	0.04	0.04	-0.04	-0.05	0.06	0.88	1.00					
10. Age at Registration	39.51	10.25	38.00	18.00	84.00	0.06	0.07	0.06	0.07	0.02	0.02	0.12	-0.05	-0.05	1.00				
11. Female (Yes)	0.33	0.47	0.00	0.00	1.00	-0.03	-0.07	-0.01	-0.04	0.06	0.02	-0.04	0.07	0.11	-0.15	1.00			
12. Having Photo (Yes)	0.81	0.39	1.00	0.00	1.00	0.08	0.01	0.06	0.08	0.00	-0.01	0.09	0.01	0.02	-0.09	0.03	1.00		
13. Years of Business Ownership	5.90	8.00	3.00	0.00	50.00	0.11	0.09	0.07	0.10	0.03	0.05	0.14	-0.08	-0.06	0.47	-0.14	-0.05	1.00	
14. Mentoring Stages	6.09	1.51	7.00	1.00	7.00	0.08	0.04	0.03	0.02	0.02	0.07	0.00	-0.07	-0.07	0.03	-0.08	-0.03	0.00	1.00

Table 2 - Negative Binomial Regression Models of Intensity of Volunteering Motivation

	<i>Dependent variable:</i>			
	Number of Conversations	Number of Mentor Initiated Conversations	Number of Conversations	Number of Mentor Initiated Conversations
	(1)	(2)	(3)	(4)
Age at Registration	-0.001 (0.002)	0.003 (0.005)	-0.001 (0.002)	0.003 (0.005)
Female (Yes)	-0.035 (0.046)	-0.571*** (0.090)	-0.027 (0.046)	-0.572*** (0.090)
Having Photo (Yes)	0.534*** (0.056)	0.098 (0.106)	0.522*** (0.056)	0.082 (0.105)
Years of Business Ownership	0.027*** (0.003)	0.031*** (0.006)	0.027*** (0.003)	0.031*** (0.006)
Mentoring Stages	0.103*** (0.014)	0.081*** (0.028)	0.097*** (0.014)	0.074*** (0.028)
Organization Client Program (Yes)	0.215*** (0.056)	0.569*** (0.107)		
No-T			0.397*** (0.076)	0.658*** (0.144)
Low-Touch Mentors			-0.214* (0.119)	-0.120 (0.227)
High-Touch Mentors			0.127 (0.096)	0.752*** (0.180)
Constant	0.907*** (0.139)	0.073 (0.265)	0.954*** (0.139)	0.117 (0.265)
Observations	2,344	2,344	2,344	2,344
Log Likelihood	-7,405.248	-4,278.448	-7,395.352	-4,273.414
theta	1.064*** (0.032)	0.290*** (0.012)	1.073*** (0.032)	0.292*** (0.012)
Akaike Inf. Crit.	14,824.500	8,570.897	14,808.700	8,564.827

Note: *: $p < 0.1$; **: $p < 0.05$; ***: $p < 0.01$. Base case are self-enrolled mentors.

Table 3 - Tobit Models of Quality of Volunteer Mentoring (Mentor Communication Styles)

	<i>Dependent variable:</i>			
	Average Conversation Polarity	Average Conversation Subjectivity	Average Conversation Polarity	Average Conversation Subjectivity
	(1)	(2)	(3)	(4)
Age at Registration	0.0001 (0.0003)	-0.0001 (0.0003)	0.0001 (0.0003)	-0.0001 (0.0003)
Female (Yes)	0.017*** (0.005)	0.010* (0.006)	0.015*** (0.005)	0.007 (0.006)
Having Photo (Yes)	0.002 (0.006)	-0.002 (0.007)	0.001 (0.006)	-0.003 (0.007)
Years of Business Ownership	0.0005 (0.0003)	0.001** (0.0004)	0.001 (0.0003)	0.001** (0.0004)
Mentoring Stages	0.001 (0.002)	0.006*** (0.002)	0.001 (0.002)	0.006*** (0.002)
Organization Client Program (Yes)	-0.018*** (0.006)	-0.023*** (0.007)		
No –Touch Mentors			-0.013 (0.008)	-0.016* (0.009)
Low-Touch Mentors			-0.060*** (0.013)	-0.078*** (0.014)
High-Touch Mentors			0.003 (0.010)	0.004 (0.012)
logSigma	-2.188*** (0.015)	-2.066*** (0.015)	-2.191*** (0.015)	-2.071*** (0.015)
Constant	0.209*** (0.015)	0.378*** (0.017)	0.214*** (0.015)	0.384*** (0.017)
Observations	2,344	2,344	2,344	2,344
Log Likelihood	1,799.591	1,371.084	1,807.461	1,381.871
Akaike Inf. Crit.	-3,583.183	-2,726.167	-3,594.922	-2,743.742
Bayesian Inf. Crit.	-3,537.106	-2,680.091	-3,537.325	-2,686.146

Note: *: $p < 0.1$; **: $p < 0.05$; ***: $p < 0.01$. Base case are self-enrolled mentors.

Table 4 - Tobit Regression Models of Persistence of Volunteer Mentoring

	<i>Dependent variable:</i>	
	Persistence (1)	Persistence (2)
Age at Registration	0.008*** (0.002)	0.008*** (0.002)
Female (Yes)	-0.031 (0.046)	-0.045 (0.046)
Having Photo (Yes)	0.249*** (0.055)	0.246*** (0.055)
Years of Business Ownership	0.013*** (0.003)	0.013*** (0.003)
Mentoring Stages	-0.002 (0.014)	-0.003 (0.014)
Organization Client Program (Yes)	0.114** (0.056)	
No-Touch Mentors		0.030 (0.077)
Low-Touch Mentors		0.026 (0.117)
High-Touch Mentors		0.303*** (0.095)
logSigma	-0.003 (0.018)	-0.004 (0.018)
Constant	0.296** (0.137)	0.310** (0.137)
Observations	2,344	2,344
Log Likelihood	-3,075.810	-3,072.718
Akaike Inf. Crit.	6,167.620	6,165.436
Bayesian Inf. Crit.	6,213.696	6,223.032

Note: *: $p < 0.1$; **: $p < 0.05$; ***: $p < 0.01$. Base case are self-enrolled mentors.

Table 5 - Logistic Regression Models of Quality of Volunteer Mentoring (Successful Connection)

	<i>Dependent variable:</i>			
	Having Connection (Yes)	Having Mentor Personal Info Exchanged (Yes)	Having Connection (Yes)	Having Mentor Personal Info Exchanged (Yes)
	(1)	(2)	(3)	(4)
Age at Registration	0.009** (0.005)	0.007 (0.005)	0.009** (0.005)	0.007 (0.005)
Female (Yes)	0.011 (0.090)	-0.103 (0.091)	-0.011 (0.091)	-0.117 (0.091)
Having Photo (Yes)	0.350*** (0.109)	0.475*** (0.110)	0.346*** (0.109)	0.473*** (0.111)
Years of Business Ownership	0.013** (0.006)	0.023*** (0.006)	0.013** (0.006)	0.023*** (0.006)
Mentoring Stages	0.050* (0.028)	0.033 (0.028)	0.050* (0.028)	0.034 (0.028)
Organization Client Program (Yes)	0.181 (0.111)	0.201* (0.111)		
No-Touch Mentors			0.023 (0.151)	0.049 (0.152)
Low-Touch Mentors			0.115 (0.228)	0.273 (0.229)
High-Touch Mentors			0.504*** (0.191)	0.417** (0.189)
Constant	-1.140*** (0.271)	-1.146*** (0.273)	-1.125*** (0.272)	-1.147*** (0.274)
Observations	2,344	2,344	2,344	2,344
Log Likelihood	-1,608.622	-1,593.964	-1,606.319	-1,592.555
Akaike Inf. Crit.	3,231.244	3,201.928	3,230.639	3,203.110

Note: *: $p < 0.1$; **: $p < 0.05$; ***: $p < 0.01$. Base case are self-enrolled mentors.

Table 6 - Sentiment Analysis Validation

Sentiment Category	N	Average Polarity	Average Subjectivity
Ambiguous	81	0.211	0.478
Negative	99	0.194	0.419
Neutral/Objective	869	0.208	0.389
Positive	951	0.306	0.478
t-tests			
Positive vs. Negative		t = 3.679, p-value = 0.000	t = 2.705, p-value = 0.008
Positive vs. Neutral/Objective		t = 9.955, p-value = 0.000	t = 9.094, p-value = 0.000
Positive vs. Ambiguous		t = 3.535, p-value = 0.001	t = -0.011, p-value = 0.991
Neutral/Objective vs. Negative		t = 0.449, p-value = 0.654	t = 1.373, p-value = 0.172
Neutral/Objective vs. Ambiguous		t = -0.102, p-value = 0.919	t = -3.450, p-value = 0.000
Ambiguous vs. Negative		t = 0.417, p-value = 0.677	t = -1.823, p-value = 0.070