



Social interaction via new social media: (How) can interactions on Twitter affect effectual thinking and behavior?

Eileen Fischer ^{a,*}, A. Rebecca Reuber ^{b,1}

^a Schulich School of Business, York University, 4700 Keele St., Toronto, ON, Canada M3J 1P3

^b Rotman School of Management, University of Toronto, 105 St. George St., Toronto, ON, Canada M5S 3E6

ARTICLE INFO

Article history:

Received 21 January 2010

Received in revised form 22 September 2010

Accepted 22 September 2010

Field Editor: S. Venkataraman

Keywords:

Effectuation

Social media

Twitter

ABSTRACT

Social interaction plays a central role in effectuation processes, yet we know little about the implications for effectuation when an entrepreneur interacts via particular channels such as social media. To address this gap, our paper uses an inductive, theory-building methodology to develop propositions regarding how effectuation processes are impacted when entrepreneurs adopt Twitter. Twitter is a microblogging platform that can facilitate a marked increase in interaction. We posit that Twitter-based interaction can trigger effectual cognitions, but that high levels of interaction via this medium can lead to effectual churn. We also posit that there is one factor, perceived time affordability, that predicts the level of social interaction in which an entrepreneur engages via Twitter. Further, we propose two factors that moderate the consequences of social interaction through Twitter. These factors are community orientation and community norm adherence. Implications for our understanding of effectuation, of social interaction, and of the impact of social media on entrepreneurial firms are discussed.

© 2010 Elsevier Inc. All rights reserved.

1. Executive summary

New social media, like Facebook, YouTube and Twitter, are being adopted by a growing number of entrepreneurs who seek to deploy them for the benefit of their business. In the relatively few scholarly studies that consider how such social media may benefit firms, the majority has focused on social media as marketing tools. Little is known about how the use of social media may affect the entrepreneurs themselves. In our paper, we address this gap by studying how the use of one social medium, Twitter, may trigger effectual entrepreneurial thinking and action.

Given that social interaction is facilitated by social media, and that social interaction is one key element in the effectuation perspective, it is logical to ask how the use of a social media channel may affect entrepreneurs' effectual cognitions. By studying how engagement with social media may be related to aspects of effectuation, we can gain a better understanding of the conditions under which entrepreneurs' use of social media may facilitate cognitions and behaviors that ultimately result in creating opportunities and developing new firms, markets, or industries. At the same time, by studying the use of social media through an effectuation lens, we can gain a theory-informed understanding of the potential impact of adoption of such channels by entrepreneurs.

Our methodology was qualitative, as our goal was to build upon extant theory regarding effectuation. Data were collected from 12 entrepreneurs, all of whom had adopted Twitter within the past two years but who varied widely in terms of their levels of usage of the medium and the types of businesses they ran. Each entrepreneur was interviewed and interviews were taped and transcribed. During the two weeks prior to, and the six months following, each interview, all tweets and blog postings by the entrepreneur and/or their company were collected. Data were analyzed via an iterative process consistent with the tenets of grounded theory development.

* Corresponding author. Tel.: +1 416 736 2100x77957.

E-mail addresses: efischer@schulich.yorku.ca (E. Fischer), reuber@rotman.utoronto.ca (A.R. Reuber).

¹ Tel.: +1 416 978 5705.

Our findings suggest that the social interactions that entrepreneurs engage in via Twitter can trigger effectual cognitions regarding both the means available to the entrepreneur and the effects that the entrepreneur may be able to bring about with the means that are available. However, we also posit that if entrepreneurs engage in very high levels of social interaction via Twitter they may experience “effectual churn,” which we define as a continuous looping between social interaction through Twitter and the reassessment of means and effects achievable, without progression through the effectuation process. As the term “churn” suggests, this cycling may be unproductive from the perspective of the entrepreneur’s business. In effect, this suggests that entrepreneurs may benefit less from their effectual cognitions if they engage too extensively in social interactions via Twitter and are iterating repeatedly from interaction to cognition without advancing through to behaviors that result in achieving desired outcomes. We adapt the concept of affordable loss from effectuation theory to account for the levels of social interaction via Twitter in which entrepreneurs are likely to engage, positing that “perceived time affordability” accounts for variance in this behavior.

We also identify two emergent constructs that may moderate the extent to which engaging in social interaction leads an entrepreneur to advancing through an effectual process. One moderator is “community orientation” which refers to the extent to which an individual is open to expanding their social network and engaging with members of the expanded network; we posit that those who are more community oriented are more likely to advance through effectual processes as a result of their social interactions on Twitter. The other is “community norm adherence” which refers to the extent to which an individual adheres to norms that have evolved in the use of the medium; we posit that those who adhere more to community norms are more likely to advance through effectual processes as well.

For theoreticians, our paper highlights potential new process paths in effectual processes, and potential new moderators of advancement through such processes. Further, it offers new conceptual insights on the construct of social interaction. For practitioners who use social media in the context of their businesses, our paper highlights that such media may be more than marketing tools. Entrepreneurs who invest a moderate amount of time in social interactions via social media like Twitter may actually benefit from new insights about the resources that are available and what they might be used for. And those who are more oriented to expanding their communities and attuned to the norms that prevail on the social media may be even more likely to benefit in terms of advancing through effectual processes. However, those who invest too heavily in social interaction via social media may be mired in an unproductive state of effectual churn.

2. Introduction

Twitter has been my number one resource for building my community and building my business. Twitter enabled me to reach out to people that I otherwise wouldn't or couldn't. You can find people who are relevant to your business readily and steadily and as the usage numbers peak on Twitter so does that ability to really connect with people in a relevant manner. What Twitter allowed us to do was cultivate a following of people for various things. ... A lot of these people I have engaged in an online fashion have become part of our offline social functions and I formed real relationships with many. Hundreds of people: my network exploded ... it grew exponentially and it's through Twitter. It's through connecting with people. They find me. They reach out to me or I find them. I reach out to them. And we engage in ongoing conversations online, meeting up sometimes offline. These are real relationships. (Informant 3)

The quotation mentioned previously is from an entrepreneur who is less than a year into her third business venture. She is describing her experiences with Twitter, the social media channel that allows users to post “microblogs” of no more than 140 characters each. The quotation is striking in its emphasis on how this channel facilitates social interaction, both online and face-to-face.

Social interactions hold a critical, yet relatively unexamined, role in the network of constructs associated with effectuation. The term effectuation refers to a logic that entails “molding and enhancing initiatives, formulating new goals and creating new opportunities rather than positioning oneself within environments largely outside one’s control or taking opportunities as exogenously given” (Wiltbank et al., 2009, p. 129). The logic of effectuation has recently received prominence in the entrepreneurship literature with the recognition that effectual approaches can increase entrepreneurial efficacy and reduce the costs of business failure, since failures of effectual firms occur earlier and at lower levels of investment (cf. Read et al., 2009a,b; Sarasvathy, 2001; Wiltbank et al., 2006).

Prior research has helpfully clarified that effectuation is a logic that fits within the larger category of decision-making under uncertainty, and is more likely than predictive logic to be used by people with greater entrepreneurial expertise when they are faced with the need to make decisions in uncertain business situations (e.g. Read et al., 2009a). Prior research has also posited that, when engaging in a behavioral process guided by the logic of effectuation, the entrepreneur interacts with other people to gain feedback and to co-create opportunities, which can lead to the gaining of commitment from new partners, the acquisition of new material resources, and the development of new goals on the part of the entrepreneur (Read et al., 2009b; Sarasvathy and Dew, 2005). However, even though social interaction is a key construct within the effectuation literature, prior research has yet to devote empirical or conceptual attention to its role. The specific objective of our research is to address the following question pertaining to social interaction: *With the opportunities for social interaction that accompany the adoption of a social media channel such as Twitter, what are the consequences for effectual processes in which entrepreneurs may engage?*

Social media channels are user-friendly, inexpensive, scalable internet- and mobile-based technologies that allow for the sharing of user-generated material. Social media are sometimes described as “content that has been created by its audience” (Comm, 2009) in contrast to content generated by media companies or publishing houses. There is no definitive typology of

different sorts of social media (see for example Kaplan and Haenlein, 2010), but it is common to differentiate between social networking (e.g. Facebook), social bookmarking (e.g. Digg), video-sharing (e.g. Youtube), picture-sharing (e.g. Flickr), professional networking (e.g. LinkedIn), user forums, weblogs (or blogs), and microblogging (e.g. Twitter). A number of the more established social media channels enjoy some of the highest traffic on the internet. The reasons for their popularity are doubtless many and varied, but, as the quotation mentioned previously suggests, a key feature is that they allow an unprecedented opportunity for individuals – including entrepreneurs – to engage in social interactions on a scale, and in a way, that was not possible before social media became widely popularized.

Given that social interaction is facilitated by social media, given that many entrepreneurs are experimenting with using social media for business purposes (e.g. Center for Excellence in Service, 2010), and given that social interaction is one key element in the effectuation perspective, it is logical to ask how the use of a social media channel may affect entrepreneurs' effectual cognitions. By studying how engagement with social media may be related to aspects of effectuation, we can gain a better understanding of the conditions under which entrepreneurs' use of social media may facilitate cognitions and behaviors that ultimately result in creating opportunities and developing new firms, markets, or industries. At the same time, by studying the use of social media through an effectuation lens, we can gain a theory-informed understanding of the potential impact of adoption of such channels by entrepreneurs.

We focused our study on one social media channel for reasons of tractability and selected Twitter for several reasons. First, Twitter was introduced relatively recently, and its popularity mushroomed little more than a year ago, which means that we can access a substantial group of entrepreneurs whose initial experiences are relatively recent. Second, compared with other social media channels, Twitter enables social interaction that is more dynamic and less time-consuming, yet oriented less than Facebook towards the entrepreneur's personal network. The entrepreneurs in our study believed that Facebook involved more personal commitment and less wide-scale public exposure compared with Twitter; for example, one stated:

"Facebook is a cocktail party and so when you are engaged in Facebook you're surrounded, sometimes very peripherally but surrounded, by people that you know and you like and that are part of your social graph. Twitter's not that. Twitter is more like somebody standing on the street corner with a megaphone saying, "Hey, if you're interested in the Toronto Maple Leafs, check out this article!" And I may be interested and I might check it out or I may just walk right by." (Informant 11)

Moreover, Twitter can augment other social media channels in that entrepreneurs can use Twitter to broadcast a link to their blog and send their Twitter messages automatically to their Facebook page. Finally, Twitter, as a social media channel, renders the entrepreneur him- or herself central to the interaction, and so it is ideally suited to studying effectuation which is also an individualized process (Sarvasathy, 2004).

Twitter is the leading platform among "microblogging" forms of social media that provide a way of broadcasting brief posts. In Twitter, these messages (called tweets) are very short: a maximum of 140 characters. Users can post original tweets under their Twitter accounts and can "retweet," which means posting another user's tweet, while giving credit to the originator. Twitter users have a profile page, which describes them, and indicates their followers and whom they follow. When a person chooses to follow someone, they receive their tweets. Often, people reciprocate and follow those who follow them. Therefore, Twitter users are both consumers of tweets (followers) and producers of tweets (followed).

Twitter Inc. was founded in 2006 and the company has recently been valued at over one billion dollars (Corkery and Vascellaro, 2009). In the year between May 2008 and May 2009 the number of users jumped from 1.6 million to 32.1 million (Vascellaro, 2009); in April 2010 Twitter reported that they had more than 105.7 million registered users (http://www.huffingtonpost.com/2010/04/14/twitter-user-statistics-r_n_537992.html). This means that most companies using Twitter – and most of the entrepreneurs we studied – had been using it for a year or less when our initial data were initially collected in September–October 2009.

Despite its newness, though, entrepreneurial firms are using Twitter in a variety of innovative ways. There are some novel ventures particular to Twitter itself. For example, entrepreneurs are developing third party applications, such as Tweetdeck, Tweetie and Twitterberry, to make Twitter easier to use on computers and smart phones. Twitter is also being used innovatively by established firms to perform core business functions that existed before Twitter, such as sales, customer service and branding. Dell and Starbucks offer coupons through Twitter to promote sales (Miller, 2009). Recognizing that disgruntled customers can easily broadcast complaints online about poor service, companies such as Pizza Hut, Comcast, and Southwest Airlines are hiring people to monitor the Twittersphere for negative comments and respond instantaneously (Reisner, 2009). This increase in social interaction has required organizational changes. For example, Comcast now has a team to monitor comments about the company being posted on Twitter (Sieglar, 2009) and Dell has hundreds of people who talk to customers through Dell Twitter accounts (Miller, 2009). Indeed, the CEO of online shoe retailer Zappos uses Twitter to hire the right people to sustain the company culture, and encourages them all to communicate with the outside world via Twitter: "For customers, I think it's a way to get an inside glimpse of what our people are like and what our culture is like. Our belief is that your culture and your brand are, ultimately, the same thing." (Tony Hsieh, quoted in Steinberg, 2008).

With well-publicized examples like these and headlines in the business press such as "One bad Twitter 'tweet' can lose companies as many as 30 customers" (Shannon, 2009) and "Dell reports \$3 million in Twitter revenue" (Miller, 2009) it is not surprising that entrepreneurs are thinking about how Twitter can be incorporated into their businesses. There is evidence that many are actively engaged; indeed, Inc. Magazine's online presentation 2009: *The Entrepreneurial Year in Review* (Inc., 2009) starts with the line: "In many ways, 2009 was the year of Twitter." Twitter is being used by 52% of the companies on the 2009 Inc. 500, Inc. Magazine's list of America's fastest-growing private companies (Barnes and Mattson, 2009). In addition, a study of 11.5 million

Twitter accounts indicates that “entrepreneur” is one of the most common words in the profiles of the most active users on Twitter, defined as the 5% of users who account for 75% of the traffic and have more than 1000 followers (Cheng and Evans, 2009). These facts and figures highlight that Twitter is being increasingly adopted by entrepreneurs and reinforce the conclusion that entrepreneurship scholars need to understand the implications of this adoption.

Scholarly research on social media in general has largely focused on how it may be used by companies as a marketing tool to monitor a marketplace (e.g. Berinato, 2010) or increase marketing communication effectiveness (e.g. Dholakia and Durham, 2010; Kozinets et al., 2010; Trusov et al., 2009). Virtually no research has examined how the user's (in our case, the entrepreneur's) opportunities for social interaction that accompany the use of a social medium like Twitter may impact their own cognitions and actions.

In order to address this gap, we next review past research on effectuation in general and in particular on social interactions in effectuation processes. We describe the qualitative methodology used to investigate the consequences for effectual processes resulting from the adoption of Twitter. Results of the data analysis are then outlined and conclusions are presented.

3. Literature review: the effectuation process and social interaction

The concept of effectuation was introduced by Sarasvathy (2001). She contrasted causation processes (that take a specific goal as given and identify the means needed to achieve the goal) with effectuation processes (that take a set of means as given and focus on selecting between possible effects that can be created with that set of means). Sarasvathy argues that effectuation processes are likely to be more appropriate than causation processes when entrepreneurs have generalized aspirations (e.g. to make money) rather than specific goals (e.g. to become a market leader in a specific niche of an established market), and under conditions where the future is unpredictable but at least partially controllable. While not explicit in the effectuation literature, Sarasvathy's original treatment of the topic and all those subsequent to it reveal that effectuation processes may involve intra-subjective cognitions, interactive behaviors, and inter-subjective outcomes.² These three elements are defined in turn.

Intrasubjective cognitions are about the “means” the entrepreneur believes she or he has available and the effects that might be achieved with these means; these cognitions conform to a particular logic emphasizing non-predictive control (Wiltbank et al., 2006), and they are intra-subjective in the sense that they are cognitions the entrepreneur has which may not be known to other people or agreed with by other people. Arising from cognitions conforming to a particular logic, effectuation processes also include *interactive behaviors*, i.e. social interactions with others. These interactions are of focal interest here and are elaborated upon later. Ultimately, as a result of cognitions and interactions, the effectual process may result in two *inter-subjective outcomes*, i.e. outcomes that are understood in the same way by the entrepreneur and other people, including, but not necessarily limited to, stakeholders. One inter-subjective outcome is the creation of “artifacts such as firms, markets and economies” (Sarasvathy, 2001, p. 249). The other is that entrepreneur acquires or is able to access additional material resources (e.g. funding) and/or intangible resources (e.g. reputation); these resources are assets of the firm (Sarasvathy and Dew, 2008, p. 242) and differ from the means inventoried by the entrepreneur in that the former are intra-subjective assessments made by the entrepreneur, whereas the latter are resources as defined by Penrose (Sarasvathy and Dew, 2008). However, effectuation theorists have posited that there is a link between the two. Though there is some ambiguity in the specification of this link (Chiles et al., 2008) we believe that acquiring inter-subjectively recognized resources may trigger the entrepreneur to engage in a cognitive re-evaluation of the means available to them, leading to an iteration in the process. This effectuation process linking intra-subjective cognition, inter-individual behaviors, and inter-subjective outcomes is depicted in Fig. 1, and following the figure we elaborate on the interactions that are of central interest in the present research.

Both the cognitive and the behavioral components of effectuation processes have aspects that are relevant here given our focus on social interactions via social media. At the intra-individual cognitive level, entrepreneurs who are thinking effectually take stock of the means they believe they have available to them. These means “usually consist of the relatively unalterable characteristics/circumstances” (Sarasvathy, 2001, p. 249) that the entrepreneur believes she or her firm possesses and the entrepreneur can take mental account of these means by asking the questions: “Who am I?” “What do I know?” and “Whom do I know.” This third question explicitly deals with the complement of friends and acquaintances the entrepreneur believes are potentially relevant to achieving some generalized goal she has for her firm.

At the behavioral level, interaction with people whom the entrepreneur knows or meets is a stage in the effectuation process that can eventually culminate in the outcomes described previously. In discussing the interaction element of the process, effectuation scholars have described entrepreneurs as sharing information with at least those “others” who are committed partners because “relationships (particularly with shared rewards) shape the trajectory of opportunity” (Read et al., 2009a, p. 3). They have also implied that it is not only committed partners who are important in the effectuation process: customers, investors, suppliers, and “any and all people [who are] potential stakeholders” (Read et al., 2009a, p. 14) may be involved in the co-creation process that results in new artifacts. Further, the roles and relationships of self-selected stakeholders may be negotiated and renegotiated in the value creation process.

While incremental refinements to the social interaction element of the effectuation model have been articulated recently, there has as yet been little conceptual consideration of the behavioral interaction element of effectual processes. The implicit assumption in regards to interactions appears to be that they involve the entrepreneur telling stakeholders about the effects she

² The authors are indebted to a reviewer for observing that the effectuation literature comprises discussions of intra-individual conceptual processes as well as inter-subjective outcomes, and for suggesting that individuals' cognitive evaluations of means be distinguished from resources.

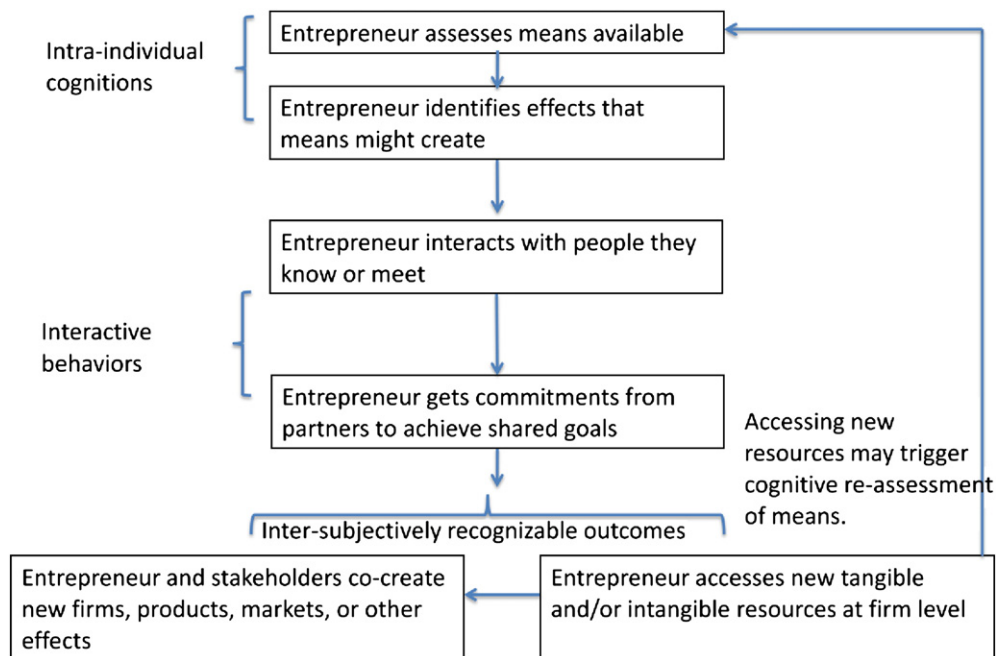


Fig. 1. An effectual process.
Adapted from Read et al. (2009a, p. 4).

thinks she can create given the means she believes she has available; this triggers engaging stakeholders in the process of refining or creating new artifacts and acquiring new resources. What has not been considered is the possibility that interactions could have an additional role in effectual processes.

Indeed, there is little work in either the entrepreneurship literature or other business literatures that has paid attention to role of social interactions per se, although there is a significant literature on related constructs. One such related construct that has attracted considerable interest is social networks. There is a significant literature in entrepreneurship, strategy and marketing (e.g. Coviello, 2006; Davidsson and Honig, 2003; Hite, 2005; Hite and Hesterley, 2001; Hoang and Antoncic, 2003; Lechner et al., 2006; Palmatier, 2008; Starr and Fondas, 1992) that has looked at how the size and characteristics of an individual's or a firm's social network matter to firm level outcomes. A closely related line of research that has attracted considerable interest reflects the characteristics of the relationship between a focal actor and another party with whom that actor is doing business. For example, marketers have examined the how the degree of dependency between actors affects their behavior and performance (e.g. Lusch and Brown, 1996); how their relational embeddedness (the degree of reciprocity and closeness that exists between two parties) affects the degree to which desirable outcomes are achieved (e.g. Palmatier, 2008; Rindfleisch and Moorman, 2001); and how the perception of friendship versus business roles affect business outcomes (e.g. Grayson, 2007; Heide and Wathne, 2006). Within the entrepreneurship domain, there is also a small but significant literature on social competence, an individual level construct that has been shown to affect the resources entrepreneurs are able to acquire and what they are able to achieve in conjunction with those with whom they interact (e.g. Baron and Markman, 2003; Baron and Tang, 2009). Collectively, these studies, and many others shed considerable light on how characteristics of entire networks, of specific relationships, or of individual differences in social skills, affect outcomes of interest. Yet studies that are concerned with networks or relationships are typically not concerned with the impact of interactions per se.

To our knowledge, only a few studies have specifically included social interaction – the characteristics of the interaction that occurs between two parties (versus the nature of their relationship) – as a variable of interest. One recent example is Maula et al. (2009) who show that more frequent social interactions between corporate investors and portfolio companies lead to learning benefits for portfolio companies. Their work builds on earlier studies that similarly found frequency of social interactions between investors and firms to benefit the investees (Sapienza, 1992; Sapienza and Gupta, 1994).

Beyond highlighting the impact of frequency of interaction in the investor–investee context, however, the extant literature in entrepreneurship and other management fields sheds little light on how engaging in social interactions (versus having social relationships) might affect other outcomes of interest. Conceptualizing the role of social interactions is increasingly pressing as the use of social media escalates, and the variety of types of social interactions proliferates (e.g. Erickson, 2010). Thus, given that (1) social interactions are posited to play a central role in effectuation processes; (2) existing conceptualizations of the impact of social interactions is relatively limited; and (3) social media appear to be giving rise to new types of social interactions, it is critical that we develop theory regarding how social interactions of the type that occur via social media such as Twitter may impact effectual processes. Since the purpose of our research is theory development, qualitative methods are appropriate (Edmondson and McManus, 2007; Eisenhardt, 1989). In the following section, we explain the specific qualitative methods utilized.

4. Methodology

In this study, our interest is in how effectual processes might be affected among entrepreneurs who have adopted the Twitter social media channel. We used a qualitative methodology to develop theory inductively (Miles and Huberman, 1994; Strauss and Corbin, 1998). As is common in such research, a primary source of data was interviews. Specifically, we conducted depth interviews (McCracken, 1988) in which individuals were encouraged to give detailed answers to questions that were organized in a semi-structured interview guide. Interviews were approximately one hour long on average; each was audio-recorded and transcribed verbatim. The interview data forms the primary data source for this study.

For each interviewee, we also collected archival data by examining publicly available information about their Twitter accounts. We collected any tweets and re-tweets made from their personal or company accounts over the two weeks preceding and the 6 months following the interview. We also noted from their profile page, on the day of interview, how many other Twitter users they were following and how many were following them. Any personal or company blog postings were also collected for the month preceding and the 6 months following the interview.

4.1. Selection of interviewees

A priori, our selection of interviewees was influenced by the consideration that expert entrepreneurs are more likely than those who lack entrepreneurial expertise to use a logic of effectuation (Dew et al., 2009; Read et al., 2009b). We therefore attempted to select people who varied in terms of entrepreneurial expertise. As in previous research (e.g. Dew et al., 2009; Reuber and Fischer, 1994, 1999) we assessed entrepreneurial expertise on the basis of experience and success. Specifically, we considered the longevity of the entrepreneur's current business and the number of successful businesses they had founded. We also considered the possibility that it might be logical to sample on expertise in social media, if it were possible to identify such expertise. Conceptually, we believe social media expertise would be a subset of business expertise in that it would encompass knowledge and skills relating to the effective use of social media channels. In practice, however, we believe it is unlikely that there can yet be a settled and stable body of social media expertise, given the relatively short span of time that many channels have existed, and given that tactics and technologies for each major channel have been, and continue to be, evolving rapidly. Thus we did not attempt to sample on social media expertise, but rather ensured that informants in our sample were Twitter users, and that they varied considerably in the extent to which they were actively using Twitter and in the nature of their use. Further, we ensured that our sample included both entrepreneurs whose product/service offerings were primarily online (e.g. a website developer) and those whose offerings were not (e.g. a venture capitalist). Because we expected that the social media activities of business-facing versus consumer-facing firms might differ in ways that had little relevance to effectuation, we narrowed our focus to entrepreneurs who had founded business-to-business firms.

We recruited entrepreneurs through a mix of personal contacts, cold calls, and the snowball technique (one interviewee nominates others) as is common in research that requires interviewees to be available for in-person interviews and to be willing to talk openly about both good and bad work-related experiences (e.g. Ashforth et al., 2007).

In total, twelve entrepreneurs were interviewed. Table 1 provides information about the businesses of each informant, their relative level of entrepreneurial experience, and their use of social media other than Twitter. Of the twelve entrepreneurs, four run businesses that are primarily online. The experience levels of those included in the study varies considerably, as does their social media usage. Table 2 provides information about their characteristics as Twitter users. It indicates that of the 12 entrepreneurs, five had only personal Twitter accounts, one had only a company Twitter account, and six maintained both personal and company accounts. It also shows wide variability in the level of engagement with the medium, as reflected by tweeting activity, and by the numbers others who are followed on Twitter.

Table 1
Characteristics of the entrepreneurs interviewed.

Informant number	Business sector (web-based firms indicated with w)	Entrepreneurial experience (length of time spent running a business, # of businesses started)	Blog(s)	Other social media to which posts are made
1	Public relations	<6 months, 1 company	Personal	Facebook, LinkedIn
2	Video production	1 year, 1 company	Personal	Facebook, Youtube
3	Community management (w)	5 years, 3 companies	Company	Facebook, LinkedIn
4	Website design (w)	4 years, 2 companies	None	Facebook
5	Public relations	15 years, 1 company	Company	Facebook, LinkedIn
6	Venture capital	12 years, 2 companies	Company	LinkedIn
7	Corporate giftware	12 years, 3 companies	Company	Facebook, Youtube, LinkedIn, Flickr
8	Consulting	10 years, 1 company	None	LinkedIn
9	Online business services (w)	12 years, 2 companies	Personal, company	Facebook, LinkedIn, User forums
10	Consulting	8 years, 1 company	None	LinkedIn
11	Private equity	3 years, 2 companies	None	Facebook
12	Online business services (w)	15 years, 5 companies	Company	Facebook, Youtube

Table 2
Twitter profile of entrepreneurs interviewed.

Informant number	Twitter accounts: P = personal C = company	Entrepreneur's duration of experience with Twitter	Number of people followed at time of interview	Number of followers at time of interview	Average # of tweets per month in six months after interview
1	P	<1 year	97 (P)	100 (P)	49 (P)
2	P	<1 year	309 (P)	605 (P)	232 (P)
3	P, C	>2 years	352 (P) 2007 (C)	2360 (P) 1657 (C)	99 (P) 204 (C)
4	P	>2 years	1163 (P)	1399 (P)	332 (P)
5	P, C	<2 years	1577 (P) 514 (C)	1605 (P) 610 (C)	226 (P) 18 (C)
6	P, C	<6 months	170 (P) 0 (C)	478 (P) 158 (C)	122 (P) 118 (C)
7	C	<2 years	1065 (C)	1086 (C)	198 (C)
8	P	<6 months	21 (P)	48 (P)	<1 (P)
9	P, C	>2 years	121 (P) 3177 (C)	1643 (P) 5504 (C)	141 (P) 138 (C)
10	P	<6 months	13 (P)	17 (P)	0 (P)
11	P, C	<12 months	252 (P)	858 (P)	35 (P)
12	P, C	<2 years	203 (P) 6417 (C)	313 (P) 6857 (C)	49 (P) 484 (C)

4.2. Interview protocol

During the interviews, we asked the entrepreneurs about how they became involved with Twitter, the role of Twitter in their business, and their behavior as both a producer and consumer of tweets. Given the semi-structured nature of the interviews, interviewers were free to explore interesting themes in more detail and were not required to ask every question in the protocol.

4.3. Analysis

To begin the analysis, both authors independently coded each interview as soon as the transcript became available. Following methodological precepts outlined by Miles and Huberman (1994) and Strauss and Corbin (1998), our literature review and research questions played a sensitizing role, suggesting the a priori constructs of expertise, assessment of means, identification of effects, co-creation, social interaction and the like. However, as the coding progressed, additional constructs emerged, and the presumed linkages among constructs were called into question. For example, as discussed in the Findings section, one construct that emerged as relevant to effectual processes was “community orientation.” Similarly, as analysis proceeded, an a priori distinction that we had originally anticipated between more and less expert entrepreneurs proved insignificant and so did not figure as a conceptual moderator.

Our coding relied on the constant comparative method, whereby newly coded text is compared to previously coded text to ensure that the emergent constructs maintain their integrity (Strauss and Corbin, 1998). We compared our coding of each transcript in order to attain reliability through discussion (cf. Kvale, 1994). When differences in the coded portions were detected, we discussed them to the point where we achieved consensus. However, we operated on the assumption that a given excerpt could be supportive of more than one observation and yield multiple interpretations.

An example of a passage that was supportive of more than one observation is the following

You have to have some minimum consistency of tweets or you're just not going to be relevant enough for people to keep continuously adding you. And I would say, you know, it's just an excellent way to kind of build a profile of expertise around a particular subject, and you can get known for that and then your business will get known for that, at the same time. (Informant 7)

One code assigned to this passage was “Twitter-based social interaction.” The other was “cognitive reassessment of effects.”

All new codes that emerged in the coding process were entered into the coding schema. The emergence of new codes diminished significantly with the coding of the ninth and tenth interviews. At that point, our analysis turned to the archival data (tweets and blogs) to see if the data provided insights relevant to the research questions. The archival data were helpful in the sense that they provided some verification for claims made in the interviews. For example, a recurrent theme in interviews was that Twitter allowed entrepreneurs to humanize the images of their firms in the eyes of external stakeholders (which became a dimension of the emergent construct community norm adherence). By examining their tweets we were able to gain a better sense of how they actually conveyed such an image in their interactions.

5. Findings

Analyzing the data resulted in an expanded conceptualization of the effectuation process, as shown in Fig. 2. It suggests new pathways in the effectuation process triggered by social interaction, one predictor of such interaction in online contexts, and new

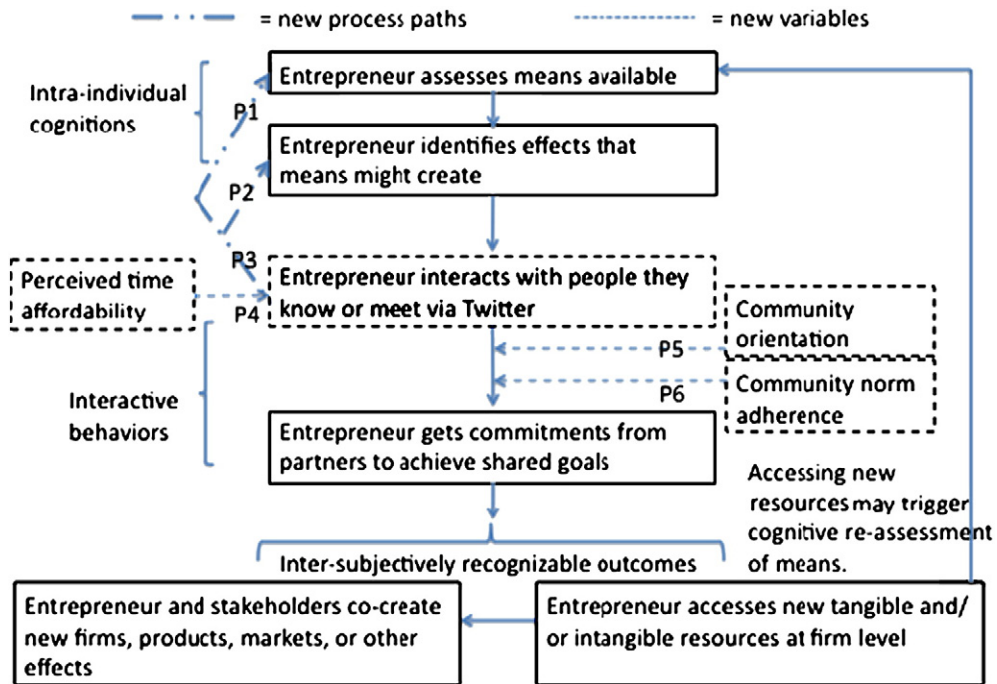


Fig. 2. Posited effects on an effectual process of social interaction via Twitter.

factors that moderate the consequences of social interaction. Each of these is described later, together with the propositions that emerged from analyses of the data. These extensions to the effectual process of Fig. 1 are shown with dashed lines and boxes.

5.1. New pathways in the effectuation process

5.1.1. From social interaction to cognitions about means

Since our research objective was to examine the impact on effectual processes of the type of social interaction that is afforded through the adoption of Twitter, we looked for evidence of assessment of means, the starting point in the process as specified in the Read et al. (2009a,b) model shown in Fig. 1. What was immediately striking was that 10 of the 12 entrepreneurs appeared to be cognitively triggered to assess the means available to them after spending some time interacting with others on Twitter.

This pathway from interaction via Twitter to assessment of means represents a new pathway in an effectuation process, from interaction to cognition, as shown in Fig. 2. A relatively simple example comes from an entrepreneur who was an avid user of many social media channels prior to his adoption of Twitter. He notes:

"I thought Twitter was the most absurd, ridiculous thing ever. I thought of myself as being somewhat progressive in social media space, but I thought "Twitter is never going to take off. And I will certainly never use something like this. It is just so 'buzzy' and ridiculous." But I followed it and I continued reading about it. About the end of 2008 I finally signed up. One of the things that captivated me was that I could go on Twitter and be totally uninteresting myself but I could follow all these really cool people. And that's what I did for probably about the first month. I just hung out and I followed some businesses because I was trying to see what the business application was. And I wanted to see the way that people were doing it. And so I sat on the sidelines for a couple of weeks.

And then I started to find my voice. I realized that I read a lot and I'm exposed to some interesting things and I've got some interesting thoughts. Why don't I put them up here and see what people think. And from there I've gone from zero followers to about 425 people that follow [Company] on Twitter now. That's been over the course of about 9 months and we haven't done any of these slick things to generate more followers." (Informant 7)

In this example, the entrepreneur's interactions on Twitter, especially his observation of the kinds of things being said by others, seems to have led him to reconsider the value to himself and others of what he knows. In saying he has found his "voice" he is acknowledging his dawning recognition that he knows things that are of interest to others. And he realizes that posting microblogs reflecting these things can add value to his company — an effect he can achieve with the means he now realizes he has available. He believes that the tweets he posts about his thoughts on his company and the opportunities they face have helped him disseminate information that he might not otherwise have shared as broadly. He believes this is resulting in a greater sense of trust

on the part of his customers: “the more that I’m opening up about things about [Company] and the things that go on here, the more that treats our customers and other stakeholders with respect and also makes them part of our community.”

This quotation suggests that his assessment of means is not a one-time occurrence upon adoption of Twitter nor mediated through resource commitments from stakeholders, as suggested in the original effectuation model. Rather, it is an ongoing, almost fluid, process that can take place independently of garnering any new inter-subjectively recognizes resource stocks.

For a number of the entrepreneurs in our sample, Twitter-based interactions also triggered a cognitive reassessment related to the “who do I know” category of means. Users of Twitter make conscious choices about who they will follow regularly. The sheer volume of potential choices relating to whom they might follow has triggered some who use it to consider how those they know provide them with various valuable inputs. This is demonstrated in entrepreneurs’ considerations of whom they should follow on Twitter, and of what the benefits are to them of following those people. The following quote is illustrative:

Selfishly, I only will follow somebody that is going to enlighten me. And so somebody like [Person X] ... if he wasn't so good I would definitely unfollow him (because he tweets frequently). In fact, the best people I follow are the people that maybe tweet four or five times a day but you know as soon as they show up they're tweeting something of great relevance and impact. I try to filter all the potential people I can follow, I try to say, "What am I going to learn from them? What can they do to make my life easier?" And as long as there's a good answer to one or both of those then I follow them. But I also unfollow people. You know, maybe on a monthly basis I sort of do a purge and people that have either started tweeting too much and I'm not interested in them filling up my TweetDeck columns or people that have just gone off-track and are talking about things that I have no interest in I just stop following them. (Informant 11)

The key insight here is that the nature of the interactions on Twitter – which entail brief but sometimes quite frequent bursts of commentary – is such that those engaging in interactions via the medium are frequently assessing the value to them of those with whom they interact.

We summarize the main insight here in the following proposition:

Proposition 1. *Social interaction via Twitter can influence an effectuation process by triggering a cognitive assessment of the means that are available to an entrepreneur.*

5.1.2. From social interaction to cognitions about effects

In their original model of an effectual process, Dew et al. (2009) posited that an assessment of effects that can be achieved is triggered by an evaluation of means. Our analysis indicates that social interaction through Twitter can also lead to an assessment of the effects that can be achieved with the means available. A case illustrating this comes from an entrepreneur whose company provides online business services. This individual had been using a variety of social media prior to adopting Twitter, including blogs, a Facebook page for “fans” of his company, and an online forum for users of his service. Thus, online social interaction was not new to the entrepreneur. However, the nature of the social interactions he was exposed to on Twitter led him to re-evaluate what it was possible for his company to do.

When an employee brought to his attention that there were tweets about his company, the entrepreneur began to monitor Twitter on a daily basis for mentions of his firm. He also had his company “follow” on Twitter anyone who had tweeted about his company even once. Through this interaction the entrepreneur learned that he could connect to his customers even more effectively than he had been doing. He stated:

We can listen and respond. And we can show the orientation of our company. We're an unconventional business. We're personable. We can become even closer to our customers if we let them see that. For example, one of our customers who we were following tweeted "If you ask a woman out on a date, don't stand her up, don't let her down." We're a friendly company and when we saw that tweet and saw that a customer was down and out, we did something about it. We sent her flowers saying [Company Name] won't let you down. (Informant 9)

It should be noted that this kind of demonstration of the personality of his company, and the enactment of some kinds of personal caring for customers, had doubtless been possible prior to the entrepreneur’s engagement with Twitter. What has changed is not what is possible to do; rather it is what is *considered* possible to do. Monitoring customers’ tweets has led the entrepreneur to consider it possible to achieve effect of conveying his company’s “personable” qualities in more tangible ways than he had previously considered.

This case illustrates a relatively incremental modification of an entrepreneur’s perception of the effects achievable with the means available. His company did not change dramatically as a result of the exposure and interactions he gained through Twitter, but may have pursued an even stronger branding as a “friendly” company, and possibly a closer bond and an increased level of co-creation with customers. An example that demonstrates a more dramatic reassessment of achievable effects comes from an entrepreneur who has developed a successful company that gave him a comfortable cash flow. He highlighted that his interactions on Twitter were helping him see many new effects he could achieve by combining some of that cash flow, his knowledge in the industry, applications he could easily develop, and the characteristics of Twitter. He states:

What I like about Twitter is how to take what's built into it in terms of how information flows and build business applications for it, and that's what we're trying to do. You know, if Twitter runs through my village and your village and her village, we all need

the information running through it, but I might like it out of a big glass and you may like it out of a small glass and she may want it with a straw. So we share the need for the information, but today we kind of have to jump in the river and get wet to get it. And I think the true value and the benefit down the road will be if you can operate in that river with an interface that allows you to get out what you need without having to jump in. And that's what I'm trying to do. So we have a number of different Twitter applications and really what I do now is just develop them to see if they work, to see "Does this move information properly?" (Informant 12)

While previous conceptualizations of the effectuation process have suggested that cognitive evaluation of effects achievable occurs prior to social interaction, our data analysis suggests that the reverse is also possible. We summarize this premise as follows:

Proposition 2. *Social interaction via Twitter can influence an effectuation process by triggering a cognitive assessment of effects that can be achieved with the means available.*

5.2. Variability in levels of effectual cognitions triggered

As was mentioned previously, not all those interviewed provided evidence that their social interactions via Twitter were stimulating effectual cognitions. Indeed, at the time of their interviews, two entrepreneurs (Informants 8 and 10) expressed considerable reservations about the medium and portrayed themselves as relatively tentative users. Their reservations are reflected by the fact that they were following relatively small numbers of people on Twitter when they were first interviewed, and that neither is posting as much as one Tweet per month. In essence, although Twitter provides a platform that facilitates widespread, frequent interactions, these entrepreneurs' levels of social interactions via Twitter are minimal, and thus unlikely to trigger much effectual thinking on their parts.

At the other end of the spectrum are two entrepreneurs (Informants 4 and 5) who were each following over 1000 people when we interviewed them, and 2000 people six months later. These two individuals are avid Tweeters, respectively posting 332 and 226 tweets on average per month. If those who interact very infrequently via Twitter are unlikely to benefit from it terms of effectual cognitions, it is possible that those who are interacting extremely frequently may be somewhat distracted by the triggering of effectual cognitions. Indeed, it can be seen from Fig. 2 that there is the potential for "effectual churn," which we define as the continuous looping between social interaction through Twitter and the reassessment of means and effects achievable, without progression through the effectuation process. As the term "churn" suggests, this cycling may be unproductive from the perspective of the entrepreneur's business. In effect, this suggests that entrepreneurs may benefit less from their effectual cognitions if they engage too extensively in social interactions via Twitter and are iterating repeatedly from interaction to cognition without advancing through to achieving inter-subjective outcomes. Those familiar with Twitter often acknowledge that while it can enhance outcomes it may also lead to time-wasting (e.g. <http://www.webworkerdaily.com/2009/02/09/twitter-productivity-tool-or-time-waster/>). Although none of our informants stated directly that they felt they were wasting time on Twitter, we speculate that those who continuously engaged in high and increasing levels of social interaction via Twitter were more likely to experience effectual churn.

We note that many of our informants sought means of managing their connections so as to avoid becoming overwhelmed and distracted. For example, one informant described her struggle to place limits on the social interactions she engaged in via Twitter

I used to have my 250 rule. I always culled [the numbers of people I followed] because I found outside of 250 I wasn't seeing the updates of people. I wanted to make sure that I was keeping engaged with my people that I was following. But I just couldn't keep it to 250 no matter how hard I tried, and I was pretty ruthless. I'd go through and if you're not really providing me value, in any sort of context, I'd drop you. I look for people who are providing me value as an entrepreneur, so insights and things like that. Or competitor information. And then there are users and people who are relevant to our community. And there are evangelists or influencers and I make sure that I am keeping up with them. And then obviously people I know personally. And so over the course of the past 18 months it's scaled to a point where I think I'm around 350 users that I'm trying to keep it down to following. Keeping it manageable is really important to me. (Informant 3)

Our analysis suggests that *some* effectual churn is likely inevitable for entrepreneurs struggling to cope with the potentially vast volume of information and opportunity for social interaction afforded by engagement with Twitter, but that such churn is not inevitable if the entrepreneur strives for a moderate level of social interaction via Twitter.

The following proposition summarizes the foregoing discussion.

Proposition 3. *A moderate level of social interaction via Twitter is likely to trigger a useful level of effectual cognitions. If social interactions are extremely restricted, the level of effectual cognitions triggered is likely to be commensurately low. If social interactions are extremely voluminous, the entrepreneur may experience effectual churn.*

This proposition begs the question of what leads some entrepreneurs to engage in so much interaction via social media while others engage in so little. In order to address this question, we compared and contrasted cases of entrepreneurs who engaged in high, moderate, and low levels of interaction, consistent with the techniques for grounded theory development. This led to the identification of a construct, "perceived time affordability" that relates to one of the key notions in effectuation theory, affordable loss.

5.2.1. Perceived time affordability

Affordable loss has been identified in the effectuation literature (e.g. Dew et al., 2009; Sarasvathy, 2001) as central to effectual thinking. The concept of affordable loss refers to the entrepreneur's cognitions about opportunities; when an opportunity is framed in an effectual way, the entrepreneur considers whether it can be pursued without investing more resources than the entrepreneur believes she can afford to lose. This contrasts with causal framing of opportunities, which focuses on identifying and determining how to obtain the resources required to pursue a desired opportunity.

Our data analysis suggests that for entrepreneurs to engage in significant levels of social interactions on a medium such as Twitter, they must frame time – their own and/or that of employees – as an affordable loss given the opportunity represented by Twitter. We refer to this construct as perceived time affordability, and posit that the less an entrepreneur perceives time as an affordable loss, the less they will be likely to engage in social interactions via Twitter. The critical nature of perceived time affordability may seem ironic given that, on the face of it, using a social medium like Twitter requires little time. It does not take a long time to compose and send messages comprised of 140 characters. The low barriers to composing a tweet make Twitter easy to disparage, as did one of our entrepreneurs who stated: "...we're talking here about not fully formed thoughts. 140 characters doesn't really do it. You're sharing what would take 3 or 4 elevator floors to get out of your mouth to a bunch of people" (Informant 6). The entrepreneur who expressed this sentiment also indicated that he regarded himself as having too little time to bother with much use of Twitter. In his view: *Twitter is just blogging for people who are lazy and otherwise don't have time to blog.* He perceived he had no additional time he could afford to lose on Twitter, except insofar as it served to promote his corporate blog:

It's an offshoot of our blog is really all it is. So really Twitter for me is a subset of things that are of use to the blog that really are either too short or too simple or otherwise just news nuggets that really don't themselves lend themselves to a blog post.

Another informant who engaged in few interactions via Twitter or other social media told us he tried to minimize the encroachment of Twitter on his "real" work and his personal time. He reported that he does not look even at email, much less Twitter, between 4:00 p.m. on Friday and 9:00 a.m. on Monday. He sees it as a problem if the Twitter community expects you to "put yourself out there" (Informant 10). Not surprisingly, his interaction via Twitter does not appear to have led to an expansion of resources or opportunities.

The other entrepreneurs in our sample perceived they had time they could afford to invest in Twitter, sensing it provided them with opportunities, as is expressed in the following quote:

Twitter is a neat means of communication creating more opportunities for serendipity in some cases, and to learn about what's going on. I get a huge amount of my breaking news and news in general through Twitter now. So people I follow are telling me stuff and I stay up to date with them. ...Now some people are producers of content. I am not naturally given to being somebody who is talkative.... But I find when I do go traveling and stuff like that, I have more time and my mind tends more to being more of a producer of content because I'm out observing as opposed to sort of being in the office, doing. (Informant 7)

As this quotation suggests, for the entrepreneur to engage in significant volumes of interactions on Twitter, he must feel he has time to both monitor tweets and to post his own. The moderately active Twitter users in our sample typically deployed time that they might otherwise not invest productively, such as time spent riding in taxis, waiting in airports, or sitting in an audience at a conference or concert. They also found ways of monitoring Twitter while doing other activities. They tended to have it on in the background of their computer and, when they were away from their desk, they monitored it on their smart phones fairly regularly.

Some of the most active entrepreneurs we interviewed allocated employee time to Twitter. One entrepreneur had a librarian whose original job was to do research. As her firm has become more involved with Twitter and the social media world, she allocated more of the librarian's time to monitoring Twitter and other social media. The once low-profile librarian has since become a person of some prominence in her organization: *"And what [the librarian] will do, and his team – we have staff meetings every Tuesday. We open up with the top ten things we need to know on social media this week. So he will cover anything that's hot and new."* (Informant 5)

This analysis of the importance of perceived time affordability is reflected in the following proposition:

Proposition 4. *The extent to which an entrepreneur engages in social interaction through a social media channel will be positively affected by the entrepreneur's perceived time affordability.*

5.3. Factors that moderate the consequences of social interaction via Twitter

Thus far we have pointed out that social interaction stimulated and enabled through Twitter may lead to a movement in an effectual process from behavioral interactions to cognitive assessments of means and effects. Looping from behaviors to cognitions, however, is not the only outcome of social interaction via social media. Our analysis suggests that Twitter-enabled social interaction can help to bring about tangible commitments from stakeholders that can in turn lead to stakeholder commitments, and intra-subjective outcomes. One example of this is the entrepreneur who monitors tweets about his company and sent flowers to a customer when her date let her down. As a result of this high level of interaction with customers, his company has reached the point where *"increasingly our own customers are answering questions on our behalf"* (Informant 9). Customers have become so committed to his company through his interaction with Twitter that they are participating in the co-

creation of his online customer support function. One indication of the extent of engagement of his stakeholders with his company is the fact that his company's Twitter account has more than 5000 followers.

A second example comes from the quote that opens our paper. Informant 3 asserts that: “*What Twitter allowed us to do was cultivate a following of people for various things,*” an assertion that nicely mirrors the element of the effectual process comprised of gaining stakeholder support for effects the entrepreneur sees as achievable. Her claim receives some indirect support from the fact that her company attracted over 3000 new followers between the time of her interview and the 6 month period afterwards during which her use of Twitter was monitored.

However, although we found examples of progression through the effectuation process, we note also that the link between social interaction through Twitter and the achievement of inter-subjective outcomes is not by any means inevitable. That is, social interaction via Twitter may or may not lead entrepreneurs to gain stakeholder commitments, acquire new resources, or bring into existence new artifacts. We now turn our analysis to considering factors that will influence the extent to which social interaction via social media can promote progress through an effectual process.

While our data analysis suggests that engagement with Twitter *could* lead to advancement through an effectual process from intra-subjective cognitions to further behavioral interactions and ultimately to intra-subjective outcomes including obtaining new resources and/ creating new artifacts, it also indicated that it did not inevitably do so. Indeed, among the entrepreneurs in our sample, we found “negative cases” (Strauss and Corbin, 1998) for whom Twitter did not appear to promote cognitions that could trigger advancement through an effectuation process. We identified two factors that moderated the relationship between social interaction through Twitter and advancement through an effectual process leading to acquiring new resources and new opportunities. These factors are (1) community orientation and (2) adherence to community norms. Each of these will be discussed in turn.

5.3.1. Community orientation

Contrasting case analysis led to the inductive identification of a construct that we label “community orientation.” Research has established that it is critical for entrepreneurs to be embedded in communities that provide them with access to resources that they do not own (e.g. Davidsson and Honig, 2003; Hite, 2005; Hite and Hesterley, 2001; Hoang and Antoncic, 2003; Lechner et al., 2006; Palmatier, 2008; Starr and Fondas, 1992) Community orientation reflects the extent to which entrepreneurs are inclined to use social media to embed themselves in such resource-providing networks.

We distinguish two dimensions of community orientation. The first is the degree to which the entrepreneur is interested in expanding their community to include more, and more diverse, individuals. For example, Informant 1 was highly oriented to expanding the number and range of his connections via Twitter. He states:

I realize that the value in it for me, basically, is that I'm building a community. And this community is not just a small community because it's all interlinked. So the great part is the conversations, we're having a conversation. That's what everyone says. But in addition to that, it's not just my conversation. It's open for the world. And it can be linked around. And I think that helps with building your group.

This informant is expressly seeking to reach out beyond his existing network to create a larger group of contacts and to connect with them through conversation. His perspective can be contrasted with that of Informant 10, who stated that for him, “Twitter is just an alternative to permission based marketing.” He was skeptical that Twitter would be as valuable to him as email. He followed very few people on Twitter, and was unnerved by the fact that people he did not know were following him. The sense that there might be a desirable opportunity to expand his community was completely absent from this Informant's commentary on his Twitter usage.

The second dimension of the community orientation construct is the extent to which the entrepreneur is open to engagement with people he encounters via Twitter. Engagement might take the form of socializing, working together on charitable projects, or helping other people with their ventures. For those who are high on this dimension, it is common to find them arranging face-to-face meetings, often for the benefit of other people as well as for themselves. For example, Informant 4 regularly posts tweets letting other entrepreneurs know of upcoming events he thinks might interest them and seeking sponsorship for such events. He also tweets during and after such events to publicize things he finds commendable about others' businesses. While such posts may help him build his own business, they can also benefit others, and in doing so build closer ties.

In contrast, even some of those who are open to expanding their communities via Twitter are less inclined to actively engage with them as members of a community. For example, one informant states his reservations about actual engagement with his social media network as follows:

I guess to some extent I find that that word community is becoming meaningless because everyone's talking, “Oh, community, community.” I have a hard time with that ... For me, social media is not the be all, end all. Right? It is just another channel to communicate with your customers, right? (Informant 9)

While communicating with customers is valuable to this entrepreneur, he is less interested in using Twitter to form a deeper engagement with a broader community. Table 3 contains quotations that further illustrate these dimensions.

The people whom we characterized as higher on both dimensions are considered high on community orientation while those characterized as low on both dimensions are considered low on community orientation. Our data analysis suggests that

Table 3

Dimensions of the community orientation construct.

Dimension	Illustrative quotation of lower level of this dimension	Illustrative quotation of higher level of this dimension
Interest in community expansion/diversification	"I'm not trying to make new friends and meet new people" (Informant 6)	"When I first started out I didn't really have any expectation but I love being able to meet new people. Meeting new people I think is powerful on a number of levels." (Informant 7)
Openness to engagement	"There's no sense of community for me on Twitter." (Informant 10) Twitter is ... one of two things. It's ... a news source so the ability to filter everything that's going on in the world through the eyes of people that you respect and have like interests and passion. And it's ... a real-time search engine. (Informant 11)	"If someone had a "tweet and greet," a "tweetup," I'd just go. It's a social thing." (Informant 1) "I've met a ton of people through Twitter networking events, for professional reasons or for fun or fundraising or whatever. People go to these events and they're like, "Oh, you're @[Informant Name]. Ah, nice to meet you. I've been following you." I'm like, "Oh, really. Who, who are you?" And then I follow them back the next day or something like that, And I notice that a lot of people do want to connect on...an offline level not just online." (Informant 2)

entrepreneurs vary along this community orientation construct, and that the more they are community oriented, the more likely it is that their use of Twitter will lead to an expansion of resources and new opportunities. This leads to the following proposition:

Proposition 5. *The relationship between social interaction through a social media channel and advancement through an effectuation process is moderated by the entrepreneur's community orientation. Specifically, there is a positive relationship between social interaction through a social media channel and advancement through an effectuation process and this is more positive for those entrepreneurs with a higher community orientation.*

It should be noted that we are not suggesting that entrepreneurs with a lower community orientation are using Twitter less extensively. Our analysis of archival data found no pattern of relationship between the frequency of tweets posted by an entrepreneur and the extent to which they manifested a community orientation. Nor are we suggesting that entrepreneurs with a lower community orientation have fewer committed stakeholders. The entrepreneurs with lower community orientation had successful firms and committed stakeholders; however, these stakeholders were not necessarily part of a Twitter community. Entrepreneurs with a low community orientation can value highly the informational aspects of Twitter. For example, one entrepreneur who is a voracious consumer of news about financial markets and the venture capital industry explained his use of Twitter as follows:

"I use it as a news aggregator largely. I also follow some people that I don't know in venture capital who have interesting perspectives ... I'm looking for information that I can't get elsewhere versus replicating what I would have on Internet Explorer as a bookmark." (Informant 6)

We conclude this discussion of the moderating role of community orientation by noting that we regard this as a cognitive construct related specifically to the individual's attitudes toward and beliefs about the value of Twitter. Individuals who feel they are part of an already large community through which they have access to abundant resources will be lower in community orientation than those who are motivated to build a community. Conversely, individuals motivated to grow their networks will be higher in community orientation now, but may come to have a lower community orientation in the future.

5.3.2. Community norm adherence

The other moderating construct that emerged in our analysis was adherence to norms that have developed among those who use the channel regularly for business purposes: we label this "community norm adherence." This construct is behavioral rather than cognitive, and refers to the extent to which entrepreneurs' tweets conform to or deviate from two specific norms among those who use Twitter for business purposes.

Eleven of the twelve entrepreneurs we interviewed articulated two specific norms that had emerged in the communities they were interacting with via Twitter. First, blatant company promotion is antithetical to the norms that have emerged among those communities with which the entrepreneurs are engaging, as is reflected in the following quotation.

"Nobody wants to hear about, you know, (Company A) being the best apparel retailer or, you know, (Company B) being the best Mexican food restaurant. You're persona non grata as soon as that happens." (Informant 11)

Part of the avoidance of blatant promotion is honesty in disclosing any self-interest that may motivate your tweets, as this quotation from the same entrepreneur illustrates:

"You know, you're an investor and you're talking about what a great company a company is. If you're an investor in that company you'd better tell the Twittersphere that you're saying this comment through a lens of an investor. You work for Wal-Mart, you'd better tell people you work for Wal-Mart as you talk about how great their green policy is. You screw up on that once and you're done."

This is not to suggest that anyone believes Twitter should not be used for marketing purposes. However, the kinds of marketing uses that are acceptable tend to be less geared toward promotion and more geared toward relationship-building. Well-tolerated uses of Twitter include providing valuable information to customers, listening to customers, and responding to customer queries or complaints. When Informant 9 travels, for example, he routinely posts tweets issuing a general invitation for customers in that location to meet him for dinner at specific time and venue so that they can meet face-to-face. His tweets provide a web link so those interested can get more details.

The second norm relates to conveying an authentic personality without conveying too much personal information. Professional acquaintances are more apt to follow and engage with entrepreneurs who consistently maintain a skillful balance between personalizing tweets and revealing personal information that is banal. The professional community values *some* revealing of personality through tweets. One entrepreneur recounts that she experimented for a time with keeping her personal voice completely absent from her tweets:

“When I was really focused on using Twitter as a tool for my business, I thought I had to provide value to my community of followers in every single tweet. Here’s an article. Here’s this. Here’s that. Here’s this. But then it really backfired. I lost my authenticity and I wasn’t a personality any more and I was amazed that people were unfollowing me and I thought, “But I’m providing all this great value. Look at all these great resources I’m showing you.” But I lost followers. I was not interesting any more.” (Informant 3)

As this quotation indicates, letting your personal voice show in your tweets is important, and there can be negative consequences to not adhering to this community value.

A tweet that typifies the kind of individuating authenticity that is valued will often make reference to non-business related matters, such as sports, current events, or things the individual finds inspiring or enjoyable. As an example, Informant 2 will often tweet about a particular music release she has found appealing, or a particular article she has enjoyed. She indicates what she likes about the music or article and provides web links for those who are interested in hearing/reading that which she enjoyed. In doing so, she shares insight into her personal tastes and values with those who follow her.

On the other hand, there are limits to the personal information you can disclose. Tweeting about what you had for breakfast is considered too banal (Informant 4). Even tweets that are acceptable in moderation can be off-putting when done to excess. For example, one entrepreneur recounted that someone he followed had tweeted far too often while on a trip:

“He went to Las Vegas. And literally every 2 minutes there was a tweet. There was a picture of this. I’m doing this right now. I’m doing that right now. Okay, enjoy your vacation. But leave my tweet wall alone. Like don’t overdo it.” (Informant 1)

Violating either type of norm – the avoidance of self-promotion and personal banality – can result in a loss of followers as these quotations suggest:

“I take people off who sell things to me.” (Informant 5)

“If they’re tweeting about what they’re doing with their kids or something, it’s so irrelevant. If it’s too personal and if it’s stupid, then I take them off.” (Informant 2)

These suggest that adherence to community norms increases the receptiveness of an audience to an entrepreneur’s tweets and the willingness of potential stakeholders to engage with the entrepreneur and, possibly, to commit resources. This leads to the following proposition:

Proposition 6. *The relationship between social interaction through a social media channel and advancement through an effectuation process is moderated by the entrepreneur’s community norm adherence. Specifically, there is a positive relationship between social interaction through a social media channel and advancement through an effectuation process and this is more positive for those entrepreneurs with a higher community norm adherence.*

6. Discussion

This paper has adopted an effectuation theoretic lens to develop insights into the implications for entrepreneurs of engaging in social interaction via a specific social medium, Twitter. It makes contributions to, and highlights directions for, future research not only for the effectuation literature, but also the literature on social interaction and the literature on the how social media usage may impact entrepreneurs and entrepreneurial firms. In this section, we discuss first the insights for the effectuation literature, second some possible implications for the conceptualization of variability in social interaction, and third the way our study complements other research on entrepreneurial usage of social media.

6.1. Insights for effectuation

In contrast to prior research on effectuation, which has focused on a process that begins with an evaluation of means and proceeds through evaluation of possible effects and then to interaction with potential stakeholders, this study has focused on a process that is triggered as an entrepreneur interacts with what may be a large group of potential stakeholders.

One contribution of our work is that it suggests a refinement of our understanding of effectual processes by highlighting that they need not begin with an evaluation of means but may rather be triggered by social interaction itself. Another is that it suggests “loops” or iterations that may occur: the extant effectuation model shows a feedback loop from inter-subjective outcomes to cognitive evaluation of means; our refinement of the model suggests that there may be interim iterations within the process, particularly from social interaction to intra-subjective cognitive evaluation of means and evaluation of effects achievable.

Of particular value is the idea that iterations may or may not be “productive” in terms of advancing through the effectuation process. Our notion of effectual churn suggests that entrepreneurs engaged in an effectual process (at least if it is triggered by a expanded volume and diversity of social interactions) may cycle unproductively through a recurrent series of social interactions, re-evaluations of means and/or re-evaluation of effects that can be achieved. Much like employees faced with “information overload” (O’Reilly, 1980), entrepreneurs may experience a sense of pleasure or satisfaction from the cycle of social interaction, reflection and re-evaluation, while failing to make effective decisions as a result. Clearly this notion of effectual churn requires further research, but it is valuable to consider the possibility that, although effectual processes may have positive consequences for entrepreneurial firms (e.g. fast failure), they may have negative ones such a unproductive, iterative re-evaluations of what means are available and what effects are achievable. It is interesting to note in this regard that our third proposition points to the possibility that social interaction can be a “mixed blessing” for entrepreneurs enacting effectual processes. Like too little interaction, too much interaction may hinder advancement through the process. In this sense, it is possible that entrepreneurs could be more effectual when they are moderately engaged in social interaction rather than being engaged too much or too little.

A question that might be raised is why the present research has identified loops within an effectual process not present in prior models. One obvious reason is that the study has focused on entrepreneurs using a social media channel that affords social interaction with particular characteristics, a point we consider more fully later. However, another reason may be that the present research has studied entrepreneurs running ongoing young businesses, while prior effectuation research examining the process has focused on entrepreneurs engaging in hypothetical startup processes (Dew et al., 2009; Read et al., 2009a). It is possible that further examination of effectual processes among entrepreneurs engaged in running their businesses could yield further refinements in our understanding of what triggers and advances effectuation processes.

6.2. Variables moderating effectuation

Prior research has identified one variable, entrepreneurial expertise, which moderates the likelihood that a person will use effectual logic when considering a new business opportunity. In our research, we did not compare experienced entrepreneurs with experienced managers or M.B.A. students as had been done in prior work (Dew et al., 2009; Read et al., 2009a). Rather we compared practicing entrepreneurs who varied in terms of their degree of entrepreneurial expertise. It may be because our operationalization of entrepreneurial expertise varied from that used in previous research that we found no meaningful differences between those we deemed more and less expert in terms of their likelihood of engaging in an effectual process triggered by Twitter-based social interaction. Since our goal was in part to explore how social media channels like Twitter are impacting entrepreneurial firms, it was not logical for us to study non-entrepreneurs in this research. However, future research could usefully examine whether expert entrepreneurs differ from non-entrepreneurs or from expert managers in regards to how exposure to Twitter influences their engagement in effectual processes. Further, as social media matures, and as expertise relating to using social media for business becomes settled, future research could examine whether those with more expertise in social media are more or less likely to engage in effectual processes as a result of their use.

Additional research is also required to better understand the impact of the two potential moderators that were identified in this research. Measures of community orientation and community norm adherence are required to proceed to testing the extent to which either enhances the likelihood that an entrepreneur who is interacting via a social media channel like Twitter will actually achieve inter-subjective outcomes through effectual processes. More research is also required to examine whether any of these variables are relevant to effectuation processes not triggered by social interactions.

6.3. Social interaction

As discussed previously, little conceptual attention has been paid to social interaction as a construct in the past entrepreneurship and marketing research. To the extent that it has been included as a construct in conceptual models (e.g. Sapienza, 1992), scholars have tended to treat social interaction as varying in frequency. In our paper, we have likewise considered only variation in frequency, as that was all that our data enabled us to observe.

However, our reflections on the social interaction construct, coupled with our focus on a special social medium designed to facilitate social interaction, have prompted us to consider how the specific context of Twitter might be one that is particularly likely to trigger effectual cognitions, in three ways. First, interactions via Twitter are composed and archived in written form. This means that when composing a communication, the entrepreneur can choose to take time to draft and redraft the message they are sending; moreover, they can re-read both their own tweets and those of others if they desire. Some other forms of interaction (e.g. letters, emails, Facebook posts) are archived and can be re-read, but for many interactions (e.g. face-to-face conversations) archiving and the opportunity for reviewing are atypical. We speculate that archived communications may be particularly likely to trigger effectual cognitions because people can evaluatively reflect both upon communications they create and those they receive.

A second feature of Twitter interactions is that they are “one to many.” This means that the audience for any given tweet is potentially huge, and unknowable a priori. Again, other forms of interaction (e.g. speeches or blog postings) share this property; in contrast, many

(such as face-to-face communications in private contexts) do not. Like their archived nature, this characteristic of Twitter-based social interactions could make them particularly likely to trigger effectual cognition; this is a question for further research.

The third and final characteristic of Twitter-based interactions that we wish to highlight relates to the set of the norms that have developed among business users of this particular medium. Besides the norms discussed previously, there is a norm of using “hashtags” so that tweets relating to particular topics can be easily identified by those searching for information on a topic, and a norm of “retweeting” posts from others than one has found valuable or inspiring. Some entrepreneurs believe there is a norm of reciprocity and it is considered impolite not to follow someone who is following you. Some of the other types of media used for interaction will share these norms, while others will not. Our point here is that future research on social interaction will need to take into account the norms that characterize the use of particular media.

Taken as a whole, we posit that our study may spark new directions in research on interaction dimensions that complement and extend the existing focus on interaction frequency. What this means is that much additional research is required to understand whether social interaction in contexts with other characteristics, including other social media channels, may have similar impacts as those we propose are triggered by interaction via Twitter. We acknowledge that having studied only a single social communication medium, we cannot generalize to other social media, or to more conventional forms of interactions.

6.4. Complementing prior literature on social media usage

The use of social media by entrepreneurial and established organizations is of sufficiently recent occurrence that there is a limited scholarly literature on the subject. As indicated in our discussion of earlier academic studies, most business researchers have focused on social media as a marketing tool (e.g. [Berinato, 2010](#); [Dholakia and Durham, 2010](#); [Kozinets et al., 2010](#); [Trusov et al., 2009](#)). Beyond scholarly work, there is a vast and rapidly expanding practitioner literature on social media and business practice. Most of this practitioner literature appears to be focused likewise on advising businesses, small and large, on how social media can be useful for marketing (for example, the website [mashable.com](#) is one aggregator of such practitioner articles).

Without doubt, Twitter and other social media have the potential to be valuable tools that, if deployed well, can positively affect business outcomes such as sales growth, brand image, and company reputation. We argue, based on our study, that Twitter is not merely “good for marketing.” We posit that, at least for entrepreneurs who themselves adopt and use the medium, it can stimulate other outcomes with consequences for their businesses. As we have suggested, these outcomes may be effectual cognitions that can in turn lead to advancement through an effectual process culminating inter-subjective outcomes. We believe that this investigation reinforces the need to consider social media not just as marketing tools, but also as a form of communication that can have much broader consequences at the individual and firm level. One promising avenue for future research in our field, therefore, is to consider more broadly the effects of social media adoption by individuals who found ventures and who work in entrepreneurial firms.

6.5. Limitations

Like any study, ours has limitations. One notable limitation is that the sample we chose to use included only business-to-business firms, and no business-to-consumer firms. This choice is justifiable on the grounds that Twitter usage is actually more common among business-facing firms (<http://www.foundub4search.wordpress.com/2010/01/08/social-media-b2b-and-b2c-engagement-by-the-numbers/>). It is also justifiable on the grounds that when developing theory, it is important to take into account and control for contextual factors such as the type of business environment in which companies operate ([Bamberger, 2008](#)). This sample limitation does mean, however, that the theoretical insights should not automatically be assumed to generalize to all contexts.

Another limitation of our study is that we rely on interview and archival data relating to Twitter usage and blogging. Observational data would clearly be a welcome complement that would enable us to better understand, on a day-to-day basis, how the use of a social medium like Twitter interacts with other factors at the individual and firm level to affect effectual cognitions, interactions, and outcomes.

7. Conclusions

We conclude this paper on a less theoretical, more managerial note by commenting on the ways that embrace of social media channels such as Twitter may affect entrepreneurs. Although we entered this project with considerable cynicism as to the likelihood that a social media channel like Twitter could be of much value to busy entrepreneurs, it was difficult to sustain cynicism in the face of compelling evidence that such channels can help entrepreneurs create and capitalize on opportunities. While some individuals will use such channels primarily to keep abreast of breaking news, and some may become overwhelmed by the volume of information and interactions they make available, many divergent and creative uses of social media are clearly possible. Marketing applications are among the most obvious: social media can provide a means of “observing” customers, getting closer to customers, and developing personal and company brands. As the functionality of these media evolve, their usefulness to entrepreneurs seems likely to grow as well.

But the impacts of social media are unlikely to be limited to increases in marketing alone. Because entrepreneurs can interact more, with a greater range of people, via social media like Twitter, they may actually find that using such tools has an effect upon the opportunities that they recognize and the ways they can go about bringing those opportunities to fruition. Those who will benefit most from social media will regard them not solely as a means of communicating with stakeholders, but also as a potential

avenue for seeing or making opportunities. In order to use social media effectively for any purpose, entrepreneurs most study closely the cultures associated with each medium. For example, they must become attuned to what is and is not “cool,” what is unacceptable or undesirable, and what expectations emerge regarding building and maintaining trust among fellow users of a medium. At present there are few if any validated guidelines for understanding what can be done with such media and virtually no certainty about what might be effective. This point was reinforced by one of our interviewees, who is often invited to speak because of her perceived expertise with social media. She said:

“I get really irritated when I see these supposed social media experts, which is just a dirty word. Because nobody's an expert. I would challenge anyone who claims “I'm an expert.” Oh bullshit. We've all been using it for years and there's no way I would ever stand up on a stool and say I know the ways of these tools.” (Informant 3)

We end our paper on this cautionary note. We acknowledge that there is much to learn both about the effective use of social media by entrepreneurs, and about the nature and variety of effectual processes in which entrepreneurs engage. Yet if social media can be more than a medium for communication, but also a corridor for opportunity creation and exploration, then entrepreneurs who make investments in learning about and experimenting with such media may stand to reap considerable benefits.

Acknowledgements

The authors are grateful for financial support from Social Sciences and Humanities Research Council of Canada. They also appreciate greatly the remarks and suggestions made by participants in the Effectuation Workshop held at Stanford University in December 2009.

References

- Ashforth, B., Kreiner, G., Clark, M., Fugate, M., 2007. Normalizing dirty work: occupational tactics for countering occupational taint. *Academy of Management Journal* 50 (1), 149–174.
- Bamberger, P., 2008. Beyond contextualization: using context theories to narrow the micro-macro gap in management research. *Academy of Management Journal* 51 (5), 839–846.
- Barnes, N.G., Mattson, E., 2009. Social Media in the 2009 Inc. 500: New Tools and New Trends. University of MA Dartmouth Center for Marketing Research. <http://www.umassd.edu/cmr/studiesresearch/socialmedia2009.cfm>.
- Baron, R.A., Markman, G., 2003. Beyond social capital: the role of entrepreneurs' social competence in their financial success. *Journal of Business Venturing* 18 (1), 41–60.
- Baron, R.A., Tang, J., 2009. Entrepreneurs' social skills and new venture performance: mediating mechanisms and cultural generality. *Journal of Management* 35 (2), 282–306.
- Berinato, S., 2010. Six ways to find value in Twitter's noise. *Harvard Business Review* 88 (6), 34–35.
- Center for Excellence in Service, 2010. The state of small business report December 2009. http://www.rhsmith.umd.edu/ces/pdfs_docs/SBSI_February_2010.pdf.
- Cheng, A., Evans, M., 2009. An In-depth Look at the 5% of Most Active Users. Sysomos Research Library. August: <http://www.sysomos.com/insidetwitter/mostactiveusers>.
- Chiles, T., Gupta, V., Bluedorn, A., 2008. On Lachmannian and effectual entrepreneurship: a rejoinder to Sarasvathy and Dew (2008). *Organization Studies* 29 (2), 247–253.
- Comm, J., 2009. Twitter Power: How to Dominate Your Market One Tweet at a Time. John Wiley & Sons, Hoboken NJ.
- Corkery, M., Vascellaro, J.E., 2009. Breaking news: Twitter to raise \$100 million from Insight, T. Rowe Price, other investors. *Wall Street Journal Deal Journal*, September 24: <http://www.blogs.wsj.com/deals/2009/09/24/breaking-news-twitter-to-raise-100-million-from-insight-t-rowe-price-other-investors/>.
- Coviello, N., 2006. The network dynamics of international new ventures. *Journal of International Business Studies* 37 (5), 713–731.
- Davidsson, P., Honig, B., 2003. The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing* 18 (3), 301–332.
- Dew, N., Read, S., Sarasvathy, S.D., Wiltbank, R., 2009. Effectual versus predictive logics in entrepreneurial decision-making. Differences between experts and novices. *Journal of Business Venturing* 24 (4), 287–309.
- Dholakia, U.M., Durham, E., 2010. One café chain's Facebook experiment. *Harvard Business Review* 88 (3), 26.
- Edmondson, A., McManus, S., 2007. Methodological fit in management field research. *Academy of Management Review* 32 (4), 1155–1179.
- Eisenhardt, K., 1989. Building theories from case study research. *Academy of Management Review* 14 (4), 532–550.
- Erickson, I., 2010. Geography and community: new forms of interaction among people and places. *The American Behavioral Scientist* 53 (8), 1194–1207.
- Grayson, K., 2007. Friendship versus business in marketing relationships. *Journal of Marketing* 71, 121–139.
- Heide, J., Wathne, K., 2006. Friends, Businesspeople, and Relationship Roles: a Conceptual Framework and a Research Agenda. *Journal of Marketing* 70, 90–103.
- Hite, J.M., 2005. Evolutionary processes and paths of relationally embedded network ties in emerging entrepreneurial firms. *Entrepreneurship Theory and Practice* 29, 113–144.
- Hite, J., Hesterley, W., 2001. The evolution of firm networks: from emergence to early growth of the firm. *Strategic Management Journal* 22 (3), 275–286.
- Hoang, H., Antoncic, B., 2003. Network-based research in entrepreneurship: a critical review. *Journal of Business Venturing* 18 (2), 165–188.
- Inc., 2009. <http://www.inc.com/ss/2009-entrepreneurial-year-in-review2009>.
- Kaplan, A.M., Haenlein, M., 2010. Users of the world, unite! The challenges and opportunities of social media. *Business Horizons* 53 (1), 59–68.
- Kozinets, R., de Valck, C., Wojnicki, A., Wilner, S., 2010. Networked narratives: understanding word-of-mouth marketing in online communities. *Journal of Marketing* 74, 71–89.
- Kvale, S., 1994. Ten standard objections to qualitative research interviews. *Journal of Phenomenological Psychology* 25, 147–173.
- Lechner, C., Dowling, M., Welpel, I., 2006. Firm networks and firm development: the role of the relational mix. *Journal of Business Venturing* 21 (4), 514–540.
- Lusch, R.F., Brown, J.R., 1996. Interdependency, contracting, and relational behavior in marketing channels. *Journal of Marketing* 60, 19–38.
- Maula, M., Autio, E., Murray, G., 2009. Corporate venture capital and the balance of risks and rewards for portfolio companies. *Journal of Business Venturing* 24 (3), 274–286.
- McCracken, G., 1988. *The Long Interview*. Thousand Oaks CA, Sage.
- Miles, M.B., Huberman, A., 1994. *Qualitative Data Analysis*, 2nd edition. Sage Publications, Thousand Oaks, CA.
- Miller, C.C., 2009. Dell says it has earned \$3 million from Twitter. *New York Times*, June 12: <http://www.bits.blogs.nytimes.com/2009/06/12/dell-has-earned-3-million-from-twitter/>.
- O'Reilly, C., 1980. Individuals and information overload in organizations: is more necessarily better? *Academy of Management Journal* 23 (4), 684–696.

- Palmatier, R., 2008. Interfirm relational drivers of customer value. *Journal of Marketing* 72 (4), 76–89.
- Read, S., Dew, N., Sarasvathy, S., Song, M., Wiltbank, R., 2009a. Marketing under uncertainty: the logic of an effectual approach. *Journal of Marketing* 73 (5), 1–18.
- Read, S., Song, M., Smit, W., 2009b. A meta-analytic review of effectuation and venture performance. *Journal of Business Venturing* 24 (6), 573–587.
- Reisner, R., 2009. Comcast's Twitter man. *BusinessWeek*, January 13: http://www.businessweek.com/managing/content/jan2009/ca20090113_373506.htm.
- Reuber, A.R., Fischer, E., 1994. Entrepreneurs' experience, expertise, and the performance of technology-based firms. *IEEE Transactions on Engineering Management* 41 (4), 365–374.
- Reuber, A.R., Fischer, E., 1999. Understanding the consequences of founders' experience. *Journal of Small Business Management* 37 (2), 30–45.
- Rindfleisch, A., Moorman, C., 2001. The acquisition and utilization of information in new product alliances: a strength-of-ties perspective. *Journal of Marketing* 65, 1–18.
- Sapienza, H.J., 1992. When do venture capitalists add value. *Journal of Business Venturing* 7 (1), 927.
- Sapienza, H.J., Gupta, A.K., 1994. Impact of agency risks and task uncertainty on venture capitalist–CEO interaction. *Academy of Management Journal* 37 (6), 1618–1632.
- Sarasvathy, S., 2001. Causation and effectuation: toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review* 26 (2), 243–263.
- Sarasvathy, S., 2004. Making it happen: beyond theories of the firm to theories of firm design. *Entrepreneurship Theory & Practice* 28 (6), 519–531.
- Sarasvathy, S., Dew, N., 2005. New market creation as transformation. *Journal of Evolutionary Economics* 15 (5), 533–565.
- Sarasvathy, S., Dew, N., 2008. Is effectuation Lachmannian? A response to Chiles, Bluedorn and Gupta (2007). *Organization Studies* 29 (2), 239–245.
- Shannon, S., 2009. One bad Twitter 'tweet' can cost 30 customers. *Bloomberg.com*, November 26: <http://www.bloomberg.com/apps/news?pid=20601087&sid=afod9i5PqoMQ&pos=9>.
- Siegler, M., 2009. Comcast: Twitter has changed the culture of our company. October 20: <http://www.techcrunch.com/2009/10/20/comcast-twitter-has-changed-the-culture-of-our-company/>.
- Starr, J., Fondas, N., 1992. A model of entrepreneurial socialization and organizational formation. *Entrepreneurship: Theory and Practice* 17 (1), 67–76.
- Steinberg, D., 2008. Zappos finds a use for Twitter. Really! Inc. June 5. <http://www.inc.com/articles/2008/06/zappos.html>.
- Strauss, A., Corbin, J., 1998. *The Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Sage, Thousand Oaks, CA.
- Trusov, M., Bucklin, R., Pauwels, K., 2009. Effects of word-of-mouth versus traditional marketing: findings from an internet social networking site. *Journal of Marketing* 73, 90–102.
- Vascellaro, J.E., 2009. Twitter trips on its rapid growth. *Wall Street Journal Technology*, May 26: <http://www.online.wsj.com/article/SB124329188281552341.html>.
- Wiltbank, R., Dew, N., Read, S., Sarasvathy, S.D., 2006. What to do next? The case for non-predictive strategy. *Strategic Management Journal* 27 (10), 981–988.
- Wiltbank, R., Read, S., Dew, N., Sarasvathy, S.D., 2009. Prediction and control under uncertainty: outcomes in angel investing. *Journal of Business Venturing* 24, 116–133.