Analyzing Online Discourse: Some Theoretical Ideas and a Visualization Approach

Research-in-Progress

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Abstract

A distinctive feature of Web 2.0 is greater interactivity occurring through electronic forums. Such forms of communication are increasingly playing important roles in ensuring the success of electronic marketplaces, online communities, etc. and therefore, understanding online discourse is critical. We use concepts from the rich tradition of discourse analysis to study these patterns. We note that online discourse, with disjointed sequences and multiple overlapping conversations, is quite challenging to study. Visualization enables disentangling forum postings into a comprehensive yet rich view. The objective of this paper is to demonstrate how discourse analysis can be applied visually in order to understand communication patterns evident on online forums. We call our visualization approach a Communication Action Map (CAM), highlighting the action orientation of discourse and illustrate its use with empirical data from a crowdfunding campaign.

Keywords: Discourse analysis, online forums, discussion boards, electronic forums, interpretive, qualitative research, crowdfunding, conversation analysis, institutional talk
Introduction

The rise of web 2.0 has given way to an increasing level of human activity occurring through the Internet. A distinctive feature of Web 2.0 is the increased interactivity enabled through structures such as electronic forums. Such forums have a varied role in both social and work settings, and include newsgroups, blogs, discussion boards, online communities, online learning, and electronic commerce. Activities include debating topics, knowledge sharing, offering support, and providing recommendations. Further, in emerging phenomena such as crowdfunding, such forms of communication are increasingly playing an important role in shaping the process of how individuals engage with them, and in determining the outcomes. Consequently, understanding the patterns and how humans construct meanings through this communication that then guides action and leads to certain outcomes is becoming critical.

While qualitative researchers have used different means to study these communication patterns, such as content analysis (Eryilmaz et al. 2013), grounded theory approach (Sarker and Sahay 2003; Vaast and Walsham 2013), and hermeneutics (Lee 1994), there has been some interest lately in discourse analysis (Vaast, Davidson, and Matteson 2013). While this approach remains relatively unexplored, and to some extent unclear, especially within the IS discipline, we embrace the principle of variety (Sarker, Xiao, and Beaulieu, 2013) by demonstrating how discourse analysis contributes to our understanding. Discourse is more than just text; rather discourse refers to the interaction of texts with other texts, and context which evolves over time (Philips and Hardy 2002). Werry (1996) suggests that “interactive written discourse provides a fertile ground for analysis since it makes possible interesting forms of social and linguistic interaction and brings into play a unique set of temporal, spatial, and social dimensions” (p. 47). Discourse analysis is an approach which emphasizes the situated, constructed, and generative nature of language (Taylor 2001). In other words, language does not simply reflect reality, but instead creates reality (Phillips & Hardy 2002). Through the study of discourse, scholars come to an understanding of how interaction leads to action. Given the variety of activities that individuals engage in online today, understanding of this online communication and its patterns (i.e., the discourse) becomes paramount in understanding the motivation behind, the meaning of, and the potential consequences of these activities (Herring 2004). Consequently, we attempt to explore and elaborate on how discourse analysis may be used by qualitative researchers to understand the construction of social reality in online forums. Our context of application is online discussion related to crowdfunding campaigns on a noted crowdfunding site.

The structure of communication in general, and of online forums in particular, makes such an understanding of the constructed reality difficult due to disjointed sequences and multiple conversations occurring at once. Visualization is one plausible way to disentangle forum postings into a “bird’s eye view” which takes into account the strengths of hierarchical topic organization of the interactions and also preserves the unfolding nature of discourse. Visualizations allow patterns to be discovered and understood by clarifying and highlighting important aspects of data that would be difficult or impossible to discern without such techniques. Visualization of data has been a common practice to represent social networks with Contractor, Monge, & Leonardi (2011) highlighting the importance of multidimensional social network visualization. However, there is very little IS research which has pursued the use of visualization as an analysis technique for online communication (see Abbasi & Chen, 2008 for an exception), and fewer still are informed by the theoretical underpinnings of discourse analysis. We note that we are not interested in adopting a distanced and automated approach to visualization, that are pursued by many researchers in the HCI and analytics community; our interest is to use visualization as a way to support the interpretive study of communication patterns based on theoretical ideas underlying the tradition of discourse analysis. The objective of this paper then is to demonstrate the use of a visualization approach that is based on a potentially valuable yet relatively unexplored methodology of discourse analysis, especially within the IS discipline. The visualization approach, which was developed based on concepts from discursive theories, helps analyze empirical material from crowdfunding, and highlights the action orientation of discourse (Austin 1962). We refer to it as a “Communication Action Map (CAM).” The rest of our paper is organized as follows. In the next section, we present philosophical and theoretical background on online communication and discourse analysis. The following section describes our theoretically informed visualization system and provides an illustrative example. We then conclude by highlighting some of the intended contributions, and demonstrating how the CAM provides understanding that are not obvious when using other methodological or common-sense approaches.
Theoretical Background

Discourse in an Internet Forum

Online discourse brings about unique challenges and opportunities due to its similarities and differences with talk and text. First, whereas written language is “space-bound, static and permanent”, spoken language is “time-bound, dynamic, and transient” (Davis & Brewer, 1997, p. 2). Communication in online forums tends to be largely asynchronous with little gate-keeping used to control who speaks and when, making online forums unlike spoken conversations. Online communication is also unlike traditional written text, in terms of the use of uppercase/lowercase, and graphics, such as emoticons which can be invoked to create meaning (Wang et al. 2014). Discourse in online forums is often seen as “written talk”; that is, it reads as though the sender were “writing talking” (Davis & Brewer, 1997, p. 2). Second, online forums are polylogal, that is, communicative situations involving multiple people which are complex interactions involving multiple actions, and aims simultaneously (Kerbrat-Orecchioni, 2004). Finally, because of the predominantly asynchronous nature of online forums, discussions often take place chaotically with lengthy gaps intermixed with overlapping topic discussions.

Discourse Analysis

Underlying Assumptions

As mentioned earlier, discourse analysis views social reality as constructed, and it “examines the multiple voices that contribute to pluralistic, contested, and paradoxical meanings that evolve from the interpretation of texts among groups over time.” (Putnam and Fairhurst 2001, p. 82). Although there are many approaches to discourse analysis, they mostly share a constructivist epistemology and ontology. Meaning is not determined by definitions in dictionaries, and grammar rules which dictate how words fit together, but instead, meaning is constitutive and is created dynamically based on the interaction of the parties involved. In addition, discourse cannot be understood outside of the context in which it occurred - meaning depends on the parties involved, their roles, what occurred prior, etc. (Taylor, 2001; van Dijk, 1997, p. 11). Discourse analysis scholars view communication as active and generative, with an openness for multiple meanings (Spivey, 1997). However, many scholars hold that “[p]ossibilities for meaning are pinned down and made into definite meanings through the social and institutional position from which the discourse comes” (Macdonell, 1986, p. 12). The connection between discourse and society is established based on a careful analysis of several core ideas, including a) action consists of intentionality, b) perspective (different perspectives may view the action differently), c) implications/consequences, and d) interaction (vs. a subsequent unrelated act) (van Dijk, 1997).

Approaches to discourse analysis studies vary widely based on the conception of discourse itself (van Dijk 2011). For example, discourse may be viewed as enactment of power and domination, which gives rise to critical discourse studies (see Fairclough 1995). Other approaches focus on discourse as a system of symbols, giving rise to studies using semiotics (see Saussure 1974). Because our objective is to uncover communication patterns formed through the interaction of users over time, we view discourse as social interaction, an approach which “focuses on pragmatics and conversation analysis” (van Dijk 2011, p. 3). We operationalize our analysis approach using discursive elements such as adjacency pairs and functional moves while also taking into account the polylogue nature of online forum communication.

Our Approach

Given our interest in online forums, we draw upon (and build on) an existing computer-mediated discourse analysis (CMDA) framework (Herring 2001, 2004). CMDA draws on communication and linguistic theories and relies on the assumptions that 1) recurrent patterns are evident in discourse, 2) discourse involves both a cognitive and social component, and 3) “discourse may be, but is not inevitably, shaped by the technological features of the computer-mediated communication systems” (Herring, 2004, pg. 343). The CMDA framework consists of identifying contextual features relating to technology (e.g., synchronicity, type of transmission, persistent text, anonymity, multi-modal, etc.) and the situation (e.g., number of participants, setting, purpose, norms, etc.). Beyond the contextual features, discourse can be analyzed along four dimensions of language: a) structural (e.g., word choice, sentence structure), b)
meaning (e.g., what is meant or accomplished through language), c) interaction (e.g., timing, coherence, interactivity), and d) social (e.g., social dynamics, power, influence). Depending on the particulars of a research study and research question, different dimensions may be more appropriate than others. For demonstrative purposes, we illustrate the CAM using the meaning and the interactional levels of language. We approach the dimension of meaning by considering talk as action and identifying what each communication strip or unit accomplishes functionally, i.e., its functional move. Examining the interactional dimension of language provides more depth to the analysis by providing a view of how the functional moves interact in the process of meaning creation by the actors.

Meaning Dimension

The meaning dimension of language focuses on what is meant or accomplished through discourse. Based on the concept that discourse is action oriented and that “words do things” (Austin 1962), a “functional move” captures what action the communication accomplishes. A functional move represents a single theme and purpose, and is directed to the same recipient(s) (Henri and Rigault 1996; Herring, 2004). Identification of functional moves is context sensitive and constrained based on the particular language game enacted in the discourse setting (Wittgenstein, 1953). Examples of common functional moves include, but are not limited to requesting, threatening, declaring, questioning, and dealing with trouble.

Interactional Dimension

Conversation analysis is a discursive approach that considers talk as a form of ordered interaction (Psathas 1995) which exhibits stable and organized patterns (Heritage 1984). This approach views “talk-in-interaction as a domain of social activity [that] is inherently ordered and not reducible to the personality, character, mood, and so on, of the people doing the talking ... interaction is a domain in its own right, and not as an expression of psychological idiosyncrasies and dispositions” (Wooffitt, 2001, p. 52). With an emphasis on the generative, turn-by-turn nature of discourse, such analysis relies on the sequence of interaction and not an individual message (Sarker and Sahay 2003). In other words, prior utterances constrain what is said next. An adjacency pair is a predictable sequence of utterances conceptualized as having a first part followed by a predictable second part (Schegloff and Sacks, 1973). For example, a question (the first part) is predictably followed by an answer (the second part). Traditionally adjacency pairs are sequential utterances produced by two different speakers. However, in an asynchronous online environment, there is a high degree of disrupted adjacency. Multiple conversations may occur simultaneously and one conversation may span several days (Herring, 2001).

Also, distinct in online forums is the polylogical arrangement of multiple participants contributing to the discourse. Interaction analysis is a discursive approach that seeks to understand how multi-party communication occurs. Systems such as Interaction Process Analysis (Bales, 1950), SYMLOG (Bales & Cohen 1979), and TEMPO (Futoran, Kelly, McGarph, 1989) have been developed to understand interaction between more than two individuals. Utilized to understand institutional talk, commonalities between these systems include identifying the affect and cooperative nature of the utterance. Friendly utterances are those that are positive and cooperative, whereas unfriendly utterances are those that are negative, combative, or uncooperative (McLeod 1992). Due to the institutional context, interaction analysis also distinguishes between utterances that are task focused (e.g., problem solving, proposing, evaluation) versus those that relate to the socio-emotional (e.g., expressive, light-hearted, or emotional) (Bales 1970; Springston 1992). In past studies involving interaction analysis, these two categories have been referred to as referential and evocative symbolism respectively (Sarker and Sahay 2003). Utterances that are friendly and socio-emotional can including joking, agreeing and showing solidarity, while unfriendly and socio-emotional utterances demonstrate antagonism or induce tension (Gorse & Emmitt, 2007).

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1 While there is disagreement about what is and isn’t considered discourse analysis, a common framework to understand its “57 varieties” includes a grouping of approaches into three theoretical traditions: 1) a critical approach, including critical linguistics and social semiotics, 2) a functional action / interaction approach including pragmatics, conversation analysis, and ethnomethodology, and 3) poststructuralism (Gill 2000, p. 173-174).

2 Institutional talk is distinct from ordinary conversations in that participants are interested in specific tasks/goals related to the organization and the roles people play (i.e., managers are expected to give out tasks to subordinates and not the other way around)(Heritage, 1997).
In summary, our underlying theoretical stance used to derive the Communication Action Map (CAM) views language as situated and generative creating communication patterns which give rise to action. Using a multidimensional approach adapted from the CMDA, we focus on the meaning and interactional level of language. Thus, we conceptualize communications patterns as being formed based on functional moves, adjacency pairs, task versus socio-emotional focus, and friendliness factors.

**Derivation and Illustration of the Communication Action Map**

**Method**

We sought to develop a method for visualizing communication patterns within an online forum which is derived from theories of discourse, is multidimensional, and is temporal in nature. More specifically, our goals are five-fold: 1) to represent the extent and unfolding of topics over time as discourse is generative, 2) to analyze the sequence of functional moves within each topic, as discourse is action, 3) to understand the patterns of interactions between the founder and backers (two significant voices in a crowdfunding context), since discourse constrains what is communicated next by a party, 4) to visualize the overall sentiment and adherence to task vs. socio-emotional patterns, and 5) to represent the longitudinal nature of the data, reflecting the temporal and contextual nature of discourse.

An example of how a CAM may be used as a tool during the analysis portion of a research study will illustrate its use. As mentioned in the introduction, we select the phenomenon of rewards crowdfunding, a new Internet-mediated process for entrepreneurs to raise money from crowds. In rewards crowdfunding, in exchange for a financial contribution, backers receive a “reward” in return, often the product being produced (Beaulieu, Sarker & Sarker, 2015). We gather our data from Kickstarter.com, the world’s largest crowdfunding website, and analyze the comments made during two Kickstarter campaigns. Because the process of crowdfunding is mediated through the Internet, the comment section provides a central forum for backers to gain an understanding of both the project and the founder. The comment section is asynchronous, structured linearly (not hierarchically), and holds persistent text. Whereas the identity of the founder is verified, the backers’ identities are anonymous. Kickstarter campaigns run from thirty to sixty days which affords an excellent opportunity to analyze a complete campaign within a short period of time. For our illustrative example, we propose the research question, “What differences in communication patterns are evident between successful and unsuccessful reward crowdfunding campaigns?” Because discourse is action-oriented and performative, we expect that different patterns of discourse will result in different actions, and consequently, different outcomes. For this reason, we see communication patterns as functioning as one plausible indicator of the success or failure of a crowdfunding campaign.

Using purposive sampling, a strategy that seeks to intentionally select cases based on a set of criteria (Silverman 2014), we selected two comparable crowdfunding campaigns to illustrate the use of the CAM. We sought cases with similar initial conditions (goal size and type of project), and level of communication, but with different outcomes. The first campaign for an innovative fish bowl (FISH) successfully reached and exceeded their goal of approximately $90,000, with 591 backers who pledged approximately $109,000 in 56 days. There were 184 comments posted between the beginning and end of the campaign by 55 backers. The second campaign, for an innovative LED light bulb (LED), was unsuccessful and did not meet its goal of $100,000; 691 backers pledged approximately $68,800 in 45 days. There were 121 comments posted during the LED campaign by 52 backers.

**Creating the CAM**

To create the CAM, we first coded our data, and then produced the visualization. Our unit of analysis is an individual comment made during a crowdfunding campaign. Each comment was coded along 4 attributes: friendly-neutral-unfriendly nature, task vs. socio-emotional focus, the dominant functional move, and its role (if any) in an adjacency pair. Our coding was based on theoretical concepts described above, specific to the meaning and interactional domains of language. Further, as we discuss below, a set of functional moves typical to crowdfunding was inductively derived. Table 1 provides some coding samples from the FISH campaign.
We derived our functional moves by first using an open coding approach to understand the different types of action that occurred during a crowdfunding campaign. This initial set of functional moves was compared across and within multiple crowdfunding campaigns and similar/redundant codes were consolidated. After several iterations, a structure of functional moves common in crowdfunding emerged (See Figure 1). Two functional moves which emerged warrant further description. The first, “Featuring” represents those comments which seek to add features to a product or campaign that do not currently exist. Featuring exchanges are often accompanied by “voting” moves and “solutioning” moves which allow for further discussion of the proposed feature. “Trouble” represents instances of tension or anger within a campaign. Typically “trouble” comes in several varieties such as contradicting, discrediting, or breaking a practice (Sarker & Sahay, 2003). While being sensitive to “trouble” during coding, a comment was not coded as such unless there was confirmation by a subsequent comment by the founder or another backer. This coding approach is reflective of the constructive and generative nature of discourse.

![Figure 1. Functional Moves Common to Crowdfunding](image)

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Comment Excerpts</th>
<th>Topic</th>
<th>Functional Move</th>
<th>F</th>
<th>N</th>
<th>U</th>
<th>Task vs. Socio-Emotional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backer</td>
<td>+1 Automatic feeder!</td>
<td>Feeder</td>
<td>Voting</td>
<td>F</td>
<td>N</td>
<td></td>
<td>Task</td>
</tr>
<tr>
<td>Backer</td>
<td>The silence is definitely scary. If this is any indication, we are in for a very silent, infrequent updates even after the campaign is over. Sigh.</td>
<td>Communication</td>
<td>Trouble</td>
<td>U</td>
<td>F</td>
<td>N</td>
<td>Task</td>
</tr>
<tr>
<td>Founder</td>
<td>Hi guys, please be assured this project has not been abandoned. As you may imagine now is a very busy time. Just over 5 days to go till the funding period is over. Thank you all for your continued support</td>
<td>Communication</td>
<td>Heading off Trouble</td>
<td>F</td>
<td>N</td>
<td></td>
<td>Task</td>
</tr>
<tr>
<td>Backer</td>
<td>Many congratulations... you've passed the stretch goal with time to spare! Great to see so much support...</td>
<td>Stretch Goal</td>
<td>Statementing</td>
<td>F</td>
<td>N</td>
<td></td>
<td>Social</td>
</tr>
</tbody>
</table>

The next step was to create the CAM by mapping the values from the coding onto a grid system of rows and columns. The top set of rows are the “header” rows where the first row is an identifier back to the raw data, and the second row is the text from the post itself. The remaining “header” rows indicate who is the speaker, the nature of the post along the dimension of friendly-neutral-unfriendly (represented as a green “f”, black “n”, or white “u”), and whether the post was task oriented (blue background), socio-emotional (yellow background), or equally task and socio-emotional (brown background). After the header rows, each subsequent row represents a single topic. Within the topic row, the set of functional moves pertaining to that topic are shown on the CAM. Adjacency pairs are indicated by horizontal black lines between the functional moves. Columns are used to represent the temporal aspect of the discussion.

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3 F, N, and U denote friendly, neutral, and unfriendly respectively.
4 In a crowdfunding campaign, the discourse is between the founder and the crowd (i.e., the backers), where most backers comment only a couple of times. Because of this distorted ratio we do not separate out each backers comments, but instead treat them as “one voice” by displaying the codes for all backers on a single row.
Analyzing Online Discourse through Visualization

Each column represents either a participant’s post, a temporal passing (i.e., each day is marked as a grey column), or a significant contextual event (green columns represent met funding goals). (See Figure 2).

<table>
<thead>
<tr>
<th>Comment #</th>
<th>Comment Text</th>
<th>Backer</th>
<th>Founder</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>Ms Ma Wa Wc</td>
<td>n n n</td>
<td>n</td>
</tr>
<tr>
<td>42</td>
<td>Phi Cre Cre</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>43</td>
<td>Cre Cre Cre</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>44</td>
<td>Dus</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>45</td>
<td>Ste Cre</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>46</td>
<td>Iri Phi</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>47</td>
<td>Yo Cre Cre</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>48</td>
<td>Phi Cre Cre</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>49</td>
<td>Iri Yo Cre</td>
<td>n</td>
<td>n</td>
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<tr>
<td>50</td>
<td>Cre Cre Ala</td>
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<td>65</td>
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<td>n</td>
<td>n</td>
</tr>
</tbody>
</table>

Row 1: Comment Number (displays comments 41 – 65)
Row 2: Comment Text (placing cursor inside the cell allows access)
Row 3: Indicates backer comments coded based on friendly/neutral/unfriendly dimensions (f, n, u). The background color represents task (blue) vs. socio-emotional focus (yellow)
Row 4: Indicates founder comments (coded similarly to Row 3)
Row 5: One row for each topic. This picture shows topics 17-23.

**Figure 2. Constructing the CAM**

**Interpreting the CAM**

Although our analysis is preliminary, the following observations are based on the patterns in evidence.

The FISH campaign (see Figure 3) begins with supporting statements from backers that are quickly acknowledged by the founder which creates a “checkerboard pattern” (a). However, within the first day or two, the founder switches to a “batch” mode (b) whereby comments are allowed to accumulate, before the founder responds in “one sitting”. This longer response time does not cause issues with the backers, as long as the founder responds consistently. After the first day and a half, the FISH campaign enters a period dominated by featuring and questioning/answering functional moves and is representative of typical exchanges within a crowdfunding campaign (c). This string of functional moves is momentarily interrupted by a period of congratulating statements (d) after the funding goal is met before the campaign reverts back to featuring and questioning/answering functional moves (c). A large gap is identified by the CAM during which no comments were made (e). Dealing with trouble is a common occurrence within all types of communication and is often responded to with disclaimers and alignments (Putnam and Fairhurst, 2001). We see evidence of this in our data as well and note that the after three unsuccessful attempts by the founder to resolve the trouble, the issue is finally resolved (f). Backers responded during this trouble exchange by either continuing the trouble, or canceling their pledge. The resolution to the trouble is linked to a set of new featuring moves (g) before the campaign ends successfully.

The LED campaign begins much like the FISH campaign, however mid-way through the campaign, the founder posted an update which caused a lot of concern from backers (see Figure 4). At this point, the pattern of comments as evidenced by the CAM changed radically in four ways: first no further comments were made regarding any previous topics (a), second, the number of new topics increased substantially (b), third, the number of topics included within a comment increased (c), and fourth, the number of adjacency pairs decreased substantially (d). The graphical representation is like a disjointed chaotic explosion as the backers vent their frustrations, and offer suggestions to get the campaign back on track. Multiple backers threatened to cancel their pledges. During the four

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5 Letters in parenthesis refer to notations in Figure 3 & 4.
days following the update the campaign received the most comments, followed by a quiet period where the founder ceased to participate.

f) The founder tried 3 times to head off trouble before successfully resolving the trouble.

g) Once trouble was resolved, the campaign returns to featuring and questioning moves.

Figure 3. FISH Successful Campaign with Expanded Views of Exchanges a), b), f), and g)

Figure 4. Unsuccessful LED Campaign
Discussion

As the two examples above suggest, a CAM can be a valuable approach to be able to quickly grasp the holistic character of online communication. Within a single forum, the CAM allows the overall structure of the communication as well as the flow within a topic and between topics to be readily discernable. CAMs allow a closer look at how the discussion within a topic progresses, while at the same time providing a view of the surrounding communication. Based on this overview, the researchers seeking an in-depth understanding can decide which part of the ongoing discourse to dig deeper into. CAMs can also be used for comparison. For example, in our two cases, the founder of FISH exhibited a more stable timing of communication, albeit the pattern evolved in a coherent manner from “checkerboard” to “batch” mode; On the other hand, the communication patterns of the LED founder was more sporadic throughout, and then the founder ceased to participate in the end. A closer inspection of the featuring moves between the two campaigns indicates that FISH backers exhibited more voting functional moves, and the LED founder was able to perform a resolution functional move more often than the LED founder.

Also of interest is a comparison of trouble between the two campaigns. We found both backers and founders started trouble, and both could also head off trouble. While both campaigns faced trouble, the FISH campaign faced less variety of trouble, and similar to the featuring functional moves, was able to reach resolution more successfully than the LED campaign. An interesting pattern in the LED project that is clearly visible in the CAM is the variety of new topics (i.e., issues and problems) brought up by the backers after the founder failed to head off and resolve earlier trouble.

While the analysis presented is preliminary, some interesting findings have emerged:

- Trouble does not in itself determine the outcome; however, the way trouble is negotiated and resolved is a better indicator of campaign outcome.
- The founder responding quickly to backers may be less important than responding consistently. Successful campaigns involve a consistent pattern (i.e., “checkerboard” or “batch” mode).
- Successful campaigns experience longer sequences of functional moves such as questioning and featuring, with more voting. Voting indicates backer engagement and is feedback to the founder.
- Successful campaigns engage in both task and socio-emotional focused interactions. A predominance of one type of focus does not allow a sense of community to form.

Conclusion

The CAM is proposed as a new visualization approach based on concepts of discourse analysis. Its integration of a temporal dimension allows an examination beyond what was said, and also captures the evolution of the discussion. Our visualization approach has several strengths. First, its ability to provide a rich, comprehensive overview on the dynamics of online communication based on sound theory. Secondly, due to the overlapping nature of online communication, the CAM offers a disentangled perspective. For example, by reading only the comment text, it would be difficult to discern, during the final phase of the LED campaign, the varied and disperse set of topics and responses. Finally, the creation of the map has interpretive flexibility and adaptability, allowing the CAM to be tailorable to multiple research and practical contexts. For example, the CAM is supportive of varying forum structures, and is able to accommodate additional discourse characteristics that are of theoretical importance to a given study. We foresee researchers gaining additional theoretical insights through the process of both creating and interpreting a CAM. As opposed to a potentially automated process, we believe the strength of the CAM comes from an intimate level of interaction between researcher and data. Beyond crowdfunding, the CAM provides the ability for both researchers and practitioners to gain a deeper analysis of online communication without sacrificing the ability to discern patterns over time. While we do not propose the CAM as predicting outcomes in a deterministic manner, we do see the CAM as highlighting “tendencies” (Walsham 1995) based on an alternative socially constructive view of online communication.

While we must hasten to say that the visualization scheme and our results here are preliminary, initial applications of the approach have proved to be promising. Our future plans are to continue refining the process of creating and interpreting the map, and testing the emerging findings for additional cases. Finally, in order to assess if the representation actually helps in interpretation of online discourse (as claimed), we plan to conduct evaluation studies of CAM with other individuals, so as to demonstrate the usability of the CAM for a larger population.
References


