What Determines an Agreeable and Adoptable Idea?
: A Study of User Ideas on MyStarbucksIdea.com

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Abstract
Rising tide of crowdsourcing as a new method of innovation is surging across diverse industries. Considering that the goal of crowdsourcing is generating ideas which can be seeds of innovation, understanding the characteristics of user-agreeable and organization-adoptable ideas can enhance the effectiveness of idea generation. In our approach, we extract idea contents characteristics such as subjectivity, negativity, publicness, and depth of idea as well as user characteristics such as user experience and reputation to examine what are the factors that affect user-agreement and organizational adoption. An analysis of 71,134 ideas from MyStarbucksIdea.com shows that there are significant differences between user-agreeable and organization-adoptable ideas. Besides, moderating effect of user reputation is found. Managerial implications are discussed.

1. Introduction

“A diverse crowd is often wiser at making decisions than expert individual.[29]” - James Surowiecki

This basic assumption above, which forms the foundation of the crowdsourcing concept, has changed how firms initiate and develop their innovations. Innovation related activities such as idea generation, needs-finding and concept generation, which were used to be done with a top-down approach in traditional business, now are considered to be done better by customers and lead users. Companies such as Dell (DellIdeaStrom), Starbucks (MyStarbucksIdea), Amazon (Mechanical Turk) and many others are trying to maximize the opportunities of collecting “Wisdom of Crowds”[29] through their own crowdsourcing sites.

Even though, the first crowdsourcing platform, ‘Innocentive’, was created in 1998, related studies were not extensively conducted until the suggestion of the term, ‘crowdsourcing’, in 2006[16]. These researches focused on various research questions: 1) What is the definition of crowdsourcing and what are the differences between the similar concepts such as user innovation, open innovation and out-sourcing [6, 9, 20, 26]? 2) Why do people participate in crowdsourcing and what are their extrinsic and intrinsic motivations[6, 19]? 3) Is crowdsourcing effective in practice? How much is the applicability of crowdsourcing as a problem solving model in diverse domains [2, 5, 13]?

In the managerial perspective, the third research topic will bring the most practical and useful implications. Although, whether the crowdsourcing concept fits and works in actual business fields or not is very important to the companies which utilize or will utilize crowdsourcing as a tool for their innovation, most prior researches have remained conceptual level and related empirical studies has not conducted sufficiently yet. Especially, these empirical researches have dealt only small part of data with manual way of analysis. Thus, in this study, focused
on business context of idea crowdsourcing, we look into the question, if the crowd-sourced ideas is the same or similar to which is adopted by companies. If not, what characteristics bring the difference in terms of idea characteristics between the two is the focal point in our paper. In our context, we define the terms, user-agreeable idea and organization-adoptable idea as follows: User-agreeable ideas refer to user-chosen ideas among all user-created ideas in the community through voting, while organization-adoptable ideas mean organization-chosen ideas among acceptable user ideas through organization decision making.

We collect whole customer posted ideas from MyStarbucksIdea.com which is one of the most popular idea crowdsourcing communities as target dataset. Then we extract diverse idea characteristics such as subjectivity, negativity, publicness, and depth and analyze the dataset with text mining techniques. Furthermore, we also consider the influence of user experience and user reputation as an independent variable and a moderator each.

Our paper is organized as follows. In the next section, we introduce the theoretical foundations of our research. The following sections describe the research model and hypotheses. In Section 4, research methodology is described. Section 5 presents the results and analysis. Implications and limitations of the study and future research directions are discussed in Sections 6.

2. Literature Review

Crowdsourcing related research has been focused on various views such as a basic definition and assumption, motivation, strategies and tools for activation, utilization of crowdsourcing. There are numbers of introduction paper about definition, dissimilarity with similar concepts (open innovation, user innovation, and outsourcing) and prominent case [6, 9, 20, 26]. Central question for some researchers was the reason why participants share their ideas and what makes them to participate in crowdsourcing. According to these studies, desire to make money, improving individual skills was discussed as an extrinsic motivation for participation [6]. Intrinsic motivations are also suggested like as fun, task autonomy, and skill variety [19]. Moreover, some research studied a peculiarity, compatibility of generated user ideas. Poetz.et al (2012) proposed that the crowdsourcing process user ideas that score significantly higher in terms of novelty and customer benefit and somewhat lower in terms of feasibility. the factors what distinguishes the successful winners over time from other users was examined [32] and makes productivity and effort to be improved [15, 18]. Besides, Articles argues that crowdsourcing is an appropriate model for public planning project [5], relevance evaluation in the development and maintenance of information retrieval systems [2], geographic information for disaster response [13]. Crowdsourcing campaigns in general and online idea contests in particular have reached popularity in practice and research.

In research on online idea contest, Walter and Back derives external factors, like rewards, contest-duration or market-maturity, to construct a model depicting effects of these factors on the outcome of online idea contest [30]. As one of the interest in understanding the influence of motivation on quality of ideas, One study found that motivation which is related with capability signaling, recognition motive and fun can positive influence on idea quality [7]. The generated idea from customer was compared with professional one by novelty, customer benefit and feasibility [24]. The rapid growth of generating idea from customer raises more depth questions about which factors make helpful, famous contents. Idea evaluation has
been extensively studied in various views such as customer review, message in SNS, and idea in contest. Especially, online product reviews have become a major role for consumer to purchase products and valuable source for marketers regarding product quality. Previous research studies the impact of online product reviews on product sales with a variety of regression model. Research has studied that customer review enable the product sales to be increased. Hu and Liu provides useful insights by linking online review characteristics (reviewer quality, exposure, product coverage, and temporal effects) with sales [17].

Further, Ghose et al. examine multiple aspects of review. They estimates the helpfulness of product review concerning to text-based features and reviewer-level features such as subjectivity, informativeness, readability, linguistic error, and usefulness of past reviews [11]. And an analysis of reviews from Amazon.com across six products indicated that review extremity, review depth, and product type affect the perceived helpfulness of the review [21]. There was effort toward predicting automatically review helpfulness including Tag punctuation, review length, product feature mentions, and star rating.

Social network services have become a viable source of information for users. Particularly, In Twitter, information deemed important by the community propagates through retweets. Studying the characteristics of popular messages is important for a number of tasks. Retweeting is the key mechanism for information diffusion in twitter. So, it is important to explore how retweet works to understand how information is diffused in the twitter network. Suh and Hong gathered content and contextual features and used this to identify factors including hash tag, URL, follower, followee, mention and they built a predictive retweet model [28]. Naveed et al. considered features of message based on a content features (positive/negative mood) and independently of context information such as the user’s position in the social network and the timestamp of a tweet [22]. Hong et al. analyzes the content of messages, temporal information, metadata of messages and users and the user’s social graph as the features in predicting the messages to be retweeted[14].

In summary, these more recent works discuss that the performance of an idea, message to be changed is based on context of the idea and elementary features of the content of idea. Although, the idea characteristics in various view has been researched widely in customer review, message in SNS area. In the research area of Crowdsourcing, the studies of determinant on performance are limited on one side of view. For compound insights of our research, we put an emphasis on the contents-based features of idea and also analyze a set of context features including user experience.

3. Theoretical Framework

With above motivations and discussion, this study proposes a conceptual model that can provide a better understanding about the characteristics of user-agreeable idea and organization-adoptable ideas in idea crowdsourcing community from the idea characteristic perspective, as shown in Figure 1.
3.1. Idea Subjectivity

Idea Subjectivity means to what extent the idea is described in subjective perspective. Subjectivity in natural language refers to aspects of language used to express opinions, evaluations, and speculations [31]. A subjective message tends to focus on the feeling and emotion of the author, while objective one delivers neutral information. Subjectivity analysis has been conducted in some customer review related research. Some researchers questioned the impact of subjectivity in reviews on customer helpfulness and product sales [11, 12]. The result shows that customers feel subjective reviews more useful and informative than objective ones. In our setting, we think that subjective idea is more likely to be attracted to users and organizations. Thus, we hypothesize

\( H1a. \text{ Subjectivity of idea has a positive impact on the user-agreement} \)

\( H1b. \text{ Subjectivity of idea has a positive impact on the organization-adoption} \)

3.2. Idea Negativity

Idea negativity refers to how the idea is negatively described on the topic. In online context, negative message is proved to be spread faster and wider than neutral or positive one[22]. Mudambi et al examined the impact of negative review online review on Amazon.com[21]. Naveed et al tested the influence of negative message in social network context with a research question that refers what causes a message to be retweeted [22]. The research also shows that the tweet which contains negative word is likely to diffuse faster than positive term-contained one. In our context, we could think that negative idea would affect other users more intensively. Company also is expected to be more sensitive to negative opinion due to its bigger influence. Therefore we hypothesize

\( H3a. \text{ Negativity of idea has a positive impact on the user-agreement} \)
**H3b. Negativity of idea has a positive impact on the organization-adoption**

### 3.3. Idea Publicness

Idea publicness means to what extent the idea aims to social benefit instead of customer benefit. The idea high in publicness contains pro-social behaviors which represent a broad range of activities that are beneficial to others in society, leading to increased social engagement in the form of volunteerism, activism, and philanthropy [23]. In our setting, we think customers would prefer customer beneficial ideas to ideas high in publicness because customers pursue more satisfaction generally. Meanwhile, organizations have more interest in the later, for carrying the ideas high in publicness into practice can improve the corporate image by impressing that the organization pursues its social responsibility, and moreover, implementing such ideas tend to cost less than the implementation of customer beneficial ideas. Thus we hypothesize

**H3a. Publicness of idea has a negative impact on the user-agreement.**

**H3b. Publicness of idea has a positive impact on the organization-adoption.**

### 3.4. Idea depth

Word Count has been related to detail, quality and readability [8, 27] of contents. In the context of questionable quality in Wikipedia articles, Blumenstock use a simple metric by word count for measuring article quality [4]. The research shows that word count was correlated to quality. And the number of words in response was assessed for measuring time and quality of response [3]. Longer reviews assumed that it includes more product details, and more details about how and where the product was used in specific contexts [21]. They executes quality ranking experiments and show that their model is superior to a baseline model that relies on word counts [14]. In the same way, we assume that longer idea contains more detailed and higher quality contents in our context.

**H4a. Word count of idea has a positive impact on the user-agreement.**

**H4b. Word count of idea has a positive impact on the organizational adoption.**

### 3.5. User Experience

User Experience has been discussed as a one of the determinant for predicting a performance. Suh et al. state that user-accumulated experience in Twitter include the age of the account, the number of favorite tweets, and the number and frequency of tweets seem to affect the retweetability[28]. Tweets made by users who created their accounts more than 300 days ago showed a retweet rate higher than the average. Yang et al. studied to better understand the question what distinguishes the successful winners over time from other users in the expertise sharing marketplace by analyzing activity data of user [32]. Based on these discussions, it leads to following hypothesis.

**H5a. User Experience has a positive impact on the user-agreement.**

**H5b. User Experience has a positive impact on the organization-adoption.**
3.6. User Reputation

In SNS context, reputation can be defined as a publicly mediated form of recognition and is based on the diffusion of prestige information to unknown parties beyond the scope of personal social networks [25]. Reputation is sometimes introduced as one of the intrinsic motivators to participate and provide a solution for a particular innovation contest [1].

In our setting, we think reputation affect how the other users react to the idea. The idea from users who have reputation will tend to much more attention to other users. Thus we hypothesize

\( H_6. \) User Reputation moderates the effect of Idea Subjectivity on the user-agreement.

\( H_7. \) User Reputation moderates the effect of Idea Negativity on the user-agreement.

\( H_8. \) User Reputation moderates the effect of Idea Publicness on the user-agreement.

\( H_9. \) User Reputation moderates the effect of Idea Depth on the user-agreement.

4. Research Methodology

Thus, the unit of analysis is an each idea, which is posted on the crowdsourcing community, MyStarbucksIdea.com. This study focuses on how idea characteristics and user characteristics affect the drawing out of user agreeable and organization adoptable ideas.

4.1. Data Collection

For the hypotheses test, we collected data from this MyStarbucksIdea.com website. MyStarbucksIdea.com was launched on March 2008, and by up to date (June 2012), more than 100,000 ideas had been posted.

To participate, end users create usernames and post their innovative ideas about how Starbucks can improve from products and services to involvement idea for community. End users can also post comments about an idea, promote or demote posted ideas by votes. When a user submits an idea, the user has the option to classify the idea from fifteen categories (e.g., Coffee & Espresso Drink, Ordering, Payment, & Pick-Up and Building Community). Once posted, other end users are able to promote or demote the idea based upon whether they feel it should be adopted by Starbucks.
Demoted ideas or promoted ideas that are no longer receiving votes are automatically pulled from the popular ideas page after a specified period of time, determined by Starbucks.MyStarbucksIdea.com also uses an Ideas in Action page which lists and describes all the ideas submitted by the community that have been, or are being implemented.

All of the idea, comment, and user text data on the website are stored in our database by using a web crawler which is developed for this research. We could gather totally 71,134 ideas for over two weeks. 4,147 ideas which has missing values or which was written in non-English characters were discarded. Including the title, ideas with less than 3 words were deleted also. Finally, 66,987 ideas were used for our experiment.

4.2. Variables

We could operationalize the variables of the proposed research model using the MyStarbucksIdea.com dataset. The dependent variables are User-Agreeable and Organization-Adoptable. User-agreeable represents how many users agree to the idea. We measured the variable by the points which each of idea attains through user voting process. Organization-adoptable shows whether the company chose the idea as a candidate for the final adoption or not. Using idea status attribute, we could derive binary information for the variable, organization-adoptable.

The explanatory variables are Idea Subjectivity, Idea Negativity, Idea Publicness, Idea Depth, and User Experience. Table 2 shows the descriptive statistics for each feature. Idea subjectivity is binary variable which indicates whether the idea is subjective or objective, while Idea negativity is linear variable which refers to what extent it represents negativity (e.g. if the value is greater, it represents intensive negativity. Also, minus value means the idea is positive.). Idea subjectivity and idea negativity are measured by Subjective-Objective-polarity and Positive-Negative-polarity analysis using SentiWordNet which contains all kind of words with sentiment and subjectivity the information of each word for a classification which is commonly used for sentiment text mining [10]. Idea publicness represents whether the idea is for prosocial behavior or not. There are 15 categories as explained in 4.1, and social involvement group categories contain public interest related ideas. We measured publicness using each idea’s category information. Idea depth is measured by the number of words in each the idea (Word Count). Before the calculation, we combine idea title and content altogether, because some users wrote their idea in the title field instead of content field. User experience is measured by the number of ideas the user posted.

A user becomes a top commenter when he or she contributes on MyStarbucksIdea.com by voting and commenting on other opinions over a certain degree of times. MyStarbucksIdea.com bestows a badge to top commenter and the badge is marked on the right side of the top commenter’s ID to let the other users know. The moderator, User reputation is measured as a binary variable based on whether the user has a badge or not.

The descriptive statistics for each variable are in Table 2.
Table 2. Descriptive Statistics for the dataset

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Max.</th>
<th>Min.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idea Subjectivity</td>
<td>0.86</td>
<td>-</td>
<td>1</td>
<td>0</td>
<td>66987</td>
</tr>
<tr>
<td>Idea Negativity</td>
<td>2.04</td>
<td>4.63</td>
<td>126</td>
<td>-47</td>
<td></td>
</tr>
<tr>
<td>Idea Publicness</td>
<td>0.21</td>
<td>-</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Idea Depth</td>
<td>96.04</td>
<td>88.82</td>
<td>2777</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>User Experience</td>
<td>7.68</td>
<td>34.9</td>
<td>305</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>User Reputation</td>
<td>0.35</td>
<td>-</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>User Agreeable</td>
<td>-1.19</td>
<td>397.73</td>
<td>705.20</td>
<td>-670</td>
<td></td>
</tr>
<tr>
<td>Organization Adoptable</td>
<td>0.02</td>
<td>-</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

5. Analysis and Results

5.1. Analysis Method

First, we use ordinary linear regression to examine hypotheses 1a to 5a as shown in Table 3. We test moderating effect of user reputation in hypotheses 6 to 9 also.

In testing hypotheses 1b to 5b, we use logit regression due to the nature of the binary dependent variable. The result is shown as Table 3.

Table 3. The Result of OLS

<table>
<thead>
<tr>
<th></th>
<th>User Agreeable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Subjectivity</td>
<td>11.5</td>
</tr>
<tr>
<td></td>
<td>.013</td>
</tr>
<tr>
<td>Negativity</td>
<td>.017</td>
</tr>
<tr>
<td></td>
<td>(-.852)</td>
</tr>
<tr>
<td>Publicness</td>
<td>-19.27</td>
</tr>
<tr>
<td></td>
<td>.000***</td>
</tr>
<tr>
<td>Word Count</td>
<td>.024</td>
</tr>
<tr>
<td></td>
<td>.193</td>
</tr>
<tr>
<td>User Experience</td>
<td>-212</td>
</tr>
<tr>
<td></td>
<td>.000***</td>
</tr>
<tr>
<td>Subjectivity×User Reputation</td>
<td>-16.75</td>
</tr>
<tr>
<td></td>
<td>.000***</td>
</tr>
<tr>
<td>Negativity×User Reputation</td>
<td>-.003</td>
</tr>
</tbody>
</table>
The resulting models are as follows:

\[
\text{User Agreeable} = \beta_1 \text{Subjectivity} + \beta_2 \text{Negativity} + \beta_3 \text{Publicity} + \beta_4 \text{Word Count} + (\beta_5 \text{Subjectivity} \times \text{User Reputation}) + (\beta_6 \text{Negativity} \times \text{User Reputation}) + (\beta_7 \text{Publicness} \times \text{User Reputation})
\]

\[
\text{Organization Adoptable} = \beta_1 \text{Subjectivity} + \beta_2 \text{Negativity} + \beta_3 \text{Publicity} + \beta_4 \text{Word Count} + \beta_5 \text{User Experience}
\]

### 5.2. Results

The summary of results from OLS and LR are as Table 4 and 5. In the test of hypotheses 1a to 5a, all of idea characteristics variables including user experience are proven to be significant in affecting to the dependent variable. Idea Subjectivity, Idea Depth and User Experience have positive impact as we expected, but Idea Negativity and Idea Publicness have negative impact on the user agreeable.

In logit regression, only Idea Negativity, Idea Depth, and User Experience are significant. Also Idea Negativity and User Experience have the negative impact on Organization adoptable.

We also find the moderating effect of user reputation on user agreeable. Beside Idea Negativity in the last model, User Reputation shows its impact as a moderator.

Table 5 is for the summary of our results. Besides Idea Negativity, user agreeable and organization adoptable idea are found to be different.
6. Discussion and Future Work

Through the crowdsourcing community, Starbucks has launched over two hundred new ideas. They were for new product development, improvement of existing products or services or change of the management strategy such as buying someone a drink remotely, sugar free syrups and selling reusable sleeves. Interestingly, the user-agreeable ideas, however, are not correlated with the user-adoptable ideas. Rather, some user-disagreed ideas belong to organization-adoptable ideas. For example, idea of iced tea bag, drink sending email service and flavored coffee attained minus point in customer voting, which means who were opposed to these ideas were much more in numbers than who agreed to, but they were organization-adoptable ideas.

Crowdsourcing works well as a new idea generation tool from crowd in MyStarbucksIdea.com, but as a qualified idea filter, it requires experts in idea pruning and refining process. Actually Starbucks hired idea partners who are experts for the process. This study shed light on the fact that what affect user agreeable and organization adoptable idea. Our result shows that there is a marginal difference in the preference between user and organization in crowdsourcing community. The findings suggest that crowdsourcing community managers should understand the difference between the preference of user agreeable and organization adoptable to maximize the effectiveness of the idea crowdsourcing. Also more detailed analysis is required to extract the implication of our results.

As all other studies, this study also has some limitations that can provide opportunities for future research. We analyze idea negativity and subjectivity using generalized text mining techniques. More specialized analysis considering idea crowdsourcing context and Starbucks domain, can bring more accurate result. Also, if another idea features such as novelty, originality and feasibility which have been assessed by experts manually, applied in idea characteristic analysis, more interesting results can be driven.

7. References

[1] Adamczyk, S., Bullinger, A.C., and Moeslein, K.M., "Call for Attention–Attracting and Activating Innovators": Book Call for Attention–Attracting and Activating Innovators, 2010


