Chapter 4
Measuring Collective Cognition in Online Collaboration Venues

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ABSTRACT
By monitoring online conversations, organizations can receive value from the intellectual activity of their most interested constituents as they engage in problem solving and ideation. However, since intergroup dynamics often hinders people from optimizing collaboration, it should be measured and monitored for quality. Current metrics assess collaborative value solely from the number of collaborators, assuming that differences between individuals can be ignored. This study found that assumption to be wrong by identifying three distinct collaborator segments that strongly differ in the timing of their participation and in the variety of ideas they introduce. Therefore, a new metric is proposed that takes into account the diverse value individuals add. This new measure is correlated with existing measures only in those infrequent situations when collaboration productivity is maximized.

INTRODUCTION
Academic research recognized the existence of collective cognition, the thinking of a group, before it became a major byproduct of the interpersonal connectivity provided by the Internet. It was observed that people collaborated through word-of-mouth and engaged in sensemaking over whatever new ideas, things and events they encountered. Organizations want to join in these deliberations as a means of gaining feedback and informing constituents more efficiently. However, gaining value from a collaborative venue poses a challenge. Scoble and Israel (2006), the authors of Naked Conversations, caution that online communities may only reflect the views of a vocal minority, a phenomenon they call the echo chamber. Currently, the only way to detect the presence of this problem is through the time-consuming, skill-demanding and possibly subjective qualitative analysis of content. This
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This article seeks to augment qualitative analysis by proposing a more objective quantitative measure of the collaborative value inside an online venue.

This article is organized as follows. First, literature is reviewed that explains participation in online communities, noting the prevalence of certain oft-discussed constructs in that literature that reveal the presence and influence of collective thinking. Second, this study’s primary argument is introduced: extant measures of collaborative value are wrongheaded because they assume that the only relevant correlate of collaborative value is the number of collaborators. Third, this study demonstrates that significant differences exist between collaborators on the basis of the information content and timing of their contributions. Fourth, a new measure of collaborative value based on information content is proposed that is correlated with existing measures only in those infrequent situations when information content is maximized. Finally, the findings and their implications are discussed.

CONCEPTUAL UNDERPINNINGS

This section begins by briefly summarizing what is known about what motivates consumers to engage in online participation. It is argued that giving consumers an opportunity to engage in collective cognition is a powerful attractor. However, lest it be assumed that high quality collaboration always occurs, two examples of natural socio-psychological processes that explain why collaboration is often suboptimal are described. These considerations are the foundation for this study’s relevance.

Motives for Virtual Community Participation

Drawing from the realms of economics and sociology, Balasubramanian and Mahajan (2001) explain virtual community participation in terms of individual utility as the sum of three sources of value: (1) focus-related, where the community as a whole benefits from everyone’s contribution, (2) consumption, the benefit individuals receive personally, and (3) approval, the satisfaction from seeing others approve of one’s contributions.

In explaining the emergence of interactive media, like blogs, Jenkins (2006) builds on Balasubramanian’s and Mahajan’s (2001) first source of value by focusing on the phenomenon of fandom, camaraderie between people with common interests, as the basis for an emerging participation culture. This participation culture leverages new technologies that allow “more active modes of spectatorship” (p. 136). Jenkins also builds on Levy’s (1997) concept of collective intelligence, the capacity of human communities to cooperate intellectually in creation, innovation and invention. This capacity often causes self-organized groups to spontaneously emerge around “common intellectual enterprises and emotional investments. Members may shift from one community to another as their interests and needs change, and they may belong to more than one community at the same time. Yet, they are held together through the mutual production and reciprocal exchange of knowledge” (Jenkins, p. 137). However, as the next section describes, communities may also form around deliberately planted intellectual seeds.

Cognitive Stimulation Inspires Co-Creation and Sensemaking

Need-for-Cognition and Co-Creation. Cacioppo and Petty (1982) note that a goal-directing problem statement will arouse those with a relatively high need-for-cognition, causing them to expend cognitive effort under the pressure of an inner tension to meet the goal. It is to be expected that blog readers, having signaled by their presence some threshold level of personal relevance for the blog’s theme, are susceptible to being lured into a need-for-cognition state by a blog author who