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# Crystallization: How Social Media Facilitates Social Construction of Reality

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**Abstract**

We propose Crystallization as a framework for understanding how reality is socially constructed in the age of social media by incorporating network attributes to agenda-setting theory. Reflecting the affordances of contemporary technology and the psychological underpinnings of social influence, Crystallization suggests that social media facilitates information produced or relayed by the members of our social networks, who become neo agenda setters. People's perceptions of reality will develop through their social networks and everyone will perceive that the information their social network produces reflects reality, but at the macro level, we will see an ever-diverging cacophony of socially constructed realities.

**Author Keywords**

Information diffusion, social influence, agenda-setting, network theory, reality, social construction; social media

**ACM Classification Keywords**

K.4.0. Computers and Society.

**Introduction**

The notion that reality is not objectively "out there" but instead socially constructed is a longstanding philosophical debate [2]. In communication research, social construction of reality has mainly been studied by

examining the role of the mass media play in shaping audience perceptions [1]. In the past several years, however, social media has emerged as popular means for users to both create and consume information, subverting the traditional one-to-many model of earlier mass communication theories. Amidst the sea of information available through the Internet, social media enables members of one's social network to create and curate content, fostering situations in which the public space and the space of communication have become increasingly synonymous — and increasingly conflicted.

### Crystallization

We use the term "Crystallization" to describe the process of information flow and reality formation in the age of social media. Based on the assumption that individuals have a fundamental psychological desire to create a shared reality with those they perceive as an in-group [5]. Crystallization posits that individuals' online social networks will act as neo agenda setters at both the first and second level. In other words, the network will help the individual curate the abundance of information generated by multiple media sources, including legacy "mainstream" media, alternative media (e.g., blogs, social media), and an individual's personal connections. Those individuals will also develop attitudes about the cognitive and affective attributes of the information that is presented to them. This leads to development of both objective and subjective reality [1].

Let us assume that information and attitudes are like small molecules, and that similar molecules cluster together to form reality "crystals" in an individual's mind. The individual's sense of reality will thus depend on the information that he or she is exposed to, and his or her attitudes towards that information. However, for users of social media, that information frequently comes through one's online social network, most often accompanied by the attitude of the person relaying the information. If it is true that subjective reality takes on

a crystallized and solid form as it is internalized by individuals [2] we may see the development of a society in which attitudes and beliefs are formed and solidified through social influence. However, since each individual's online network is constituted differently, the attributes of those networks and users' relationships with people in those networks will affect what they perceive as being reality. For example, individuals who are a part of smaller and more homogenous groups will cling to a view of reality that will have fewer degrees of overlap with the society in general, but strongly overlap with the people their network, a phenomenon known as the echo chamber. On the other hand, individuals that have a more diverse online network may have a very different sense of reality than those people with small, homogeneous online networks, but still think that their idea of reality is the "true reality." At the end of the day, users would think they understand mainstream reality, but from a macro societal perspective, there may be an increasing fragmentation of public perceptions, making it difficult to discern an actual mainstream social reality.

As users of social media post links to news items and social events and comment about them, it would hold that those users are transforming their subjective realities into symbolic realities. As those posts are shared with trusted contacts in online social networks, they may become crystallized into something perceived as an objective reality.

Crystallization is guided by the following assumptions:

1. Mainstream media, alternative media, and social networks are sources of information
2. An individual's access to information will be determined by his or her communication patterns with the sources
3. An individual's judgment about the *salience* of the information will be a function of the quantity of source(s) and the individual's relationship(s) with the source(s).

4. Attitude towards the content of the information will be affected by others' attitudes and the individual's relationships with those people.
5. Over time, individuals will develop a sense of reality
6. At a macro level, reality formation will crystallize in groups.
7. The process of Crystallization will be moderated by attributes of the individual's social network and the attributes of the individual

From an individual's perspective, the process of reality formation that we present is not novel; however, we predict that the new media landscape in which this takes place generates different outcomes at the societal level. This model incorporates a network perspective of social influence in comparison to dyadic, or linear perspectives of social influence.

The novel component of this model is that social media enhances accessibility of one's networks and visibility of what topics they think are important, as well as their attitudes towards those topics. In the pre-social media era, there were limits to an individual's interaction with personal connections due to constraints of time and space, limiting the exchange of opinions to those with whom one communicated frequently (i.e. family, neighbors, or people at work). However, social media eliminate many of those time and space constraints, giving individuals immediate access to a much larger network. Further, social media enable one to view attitudes that people have on a certain topic that would not otherwise be discussed in a face-to-face situation.

#### **Moderators of the Crystallization process**

The Crystallization process will be affected by two main components: the attributes of an individual's social network, and attributes of the individual, such as personality, cultural background. Here, we will focus on the network attributes.

Network attributes include reciprocity, proximity, homophily, and diversity [4]. Proximity is the closeness to others in the network. This closeness can be both physical (geographic) and psychological. Homophily is the degree of similarity within the network; people with similar perceptions of reality will have a higher probability of being connected. From a negative perspective, this may facilitate the spiral of silence, which is a phenomenon that describes how minority views are crushed in the presence of a majority, or an echo chamber, which is when people view the opinions of their network as being the majority opinion. However, individuals will have different degrees of homophily depending on topic.

The diversity of one's network will impact how strong the Crystallization is: those who have less diverse networks will have stronger beliefs about what they think is important, resulting in an echo chamber effect, but those with diverse networks will be exposed to information and perspectives on that information that would be highly improbable in an era of traditional media. The Internet facilitates this because the wealth of information enables people to select information that is consistent to their existing beliefs. Crystallization also amplifies the weight that is given to lower-level (peripheral) agendas, controversial issues, and special interest sub-groups, thickening the long tail. People who are structurally marginal to one certain "group" are more likely to provide novel information because they have access to other groups [6]. Thus, people who bridge different networks (those who fill in the structural holes) will be the important disseminators of new information, as they are more likely to be opinion leaders [3].

#### **Technological Implications**

Although we don't want to present a technologically deterministic view, it is important to acknowledge that when information is being distributed digitally, computer algorithms could play a large role in terms of

what information is presented to the individual. This poses different concerns for mainstream media sources and social network sources.

In the case of legacy media sources, in the golden age of paper newspapers, the most important news was placed on the front page, and one could tell by the layout of the paper (in terms of headline size, columns dedicated) how important the news was. In television news, the most important news was reported first. The format of the news enforced mainstream media's agenda setting abilities. On the Internet however, these dynamics slightly change. Although the mainstream media still have some control in terms of which articles are presented on the main page of their website, there are other elements on the website that reflect the most popular news, such as "most emailed article" or "most-read article." Since these statistics are generated by computer algorithms, the more these algorithms are introduced into the page, the lesser the role of the agenda setter becomes. The algorithms are also vulnerable to manipulation by hackers and critical mass effects. Thus, what individuals perceive to be important news because it appeared as "most-read article" may actually not accurately reflect other users' perceptions.

With social media, there is a similar problem where the visibility of information about one's social network relies on the algorithms of the social network site operator. For example, Facebook has certain algorithms that selectively show the status updates of one's Friends. Although we can presume that Facebook shows status updates of people we communicate with more, we don't really know what criteria Facebook is using. Although individuals can certainly choose to look at all of the information their network is producing by clicking on individual profiles and such, as we are increasingly seeing social media use as a default rather than an option, the algorithm Facebook uses in constructing one's News Feed may have a large impact on what information individuals actually absorb, especially for

users who have low technological expertise. In this case, sites such as Facebook may even become a third agenda setter.

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