



# Stages of motivation for contributing user-generated content: A theory and empirical test



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## ARTICLE INFO

### Keywords:

User-generated content  
Motivation  
Wikipedia  
Helping behaviour

## ABSTRACT

User-generated content (UGC) projects involve large numbers of mostly unpaid contributors collaborating to create content. Motivation for such contributions has been an active area of research. In prior research, motivation for contribution to UGC has been considered a single, static and individual phenomenon. In this paper, we argue that it is instead three separate but interrelated phenomena. Using the theory of helping behaviour as a framework and integrating social movement theory, we propose a stage theory that distinguishes three separate sets (initial, sustained and meta) of motivations for participation in UGC. We test this theory using a data set from a Wikimedia Editor Survey (Wikimedia Foundation, 2011). The results suggest several opportunities for further refinement of the theory but provide support for the main hypothesis, that different stages of contribution have distinct motives. The theory has implications for both researchers and practitioners who manage UGC projects.

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“I’ve always been only a Wikipedia reader, never a Wikipedia editor. Over the years, Wikipedia has greatly benefitted me with scads of information about every topic under the sun. However, the prospect of editing the thing seemed scary and mysterious—I mean, who are these people anyway? How does one become an encyclopedia editor?—but there it was, a big honkin’ typo staring at me. I was suddenly seized by the responsibility—obligation, really—to fix it. So I took the plunge and hit that edit button.

So began my love affair with editing Wikipedia. It turns out editing an article isn’t scary at all. It’s easy, surprisingly satisfying and can become obsessively addictive.”

Gina Trapani, editor of Lifehacker<sup>1</sup>

## 1. Introduction

Internet-based information and communication technologies (ICT) supporting online community spaces and shared information resources have made possible a new mode of coordinated effort, open online communities for user-generated content (UGC). Signal features of this phenomenon include:

1. large numbers of distributed contributors, commensurate with the popularity of the activity, ranging from dozens to tens of thousands or more;
2. mostly unpaid contributions; and
3. jointly-focused activity, in which contributors collectively develop new content (e.g., text, images or software) of value to a larger audience.

Wikipedia is the most dramatic though not unique example of UGC. This online encyclopaedia has expanded rapidly to more than 40 million articles in more than 290 languages, with a huge number of contributions from voluntary contributors who develop and edit content for the site: more than 10 million edits from over 2 million active contributors in September 2016 alone.<sup>2</sup>

The purpose of this research is to propose and test a novel theory of the motivation of contributors of UGC projects to contribute to a project. By *motives*, we mean factors that increase the probability that an individual will make a contribution. By *contribution*, we mean the effort that is given by individual volunteers to create the collective good produced by the project, such as articles or text for Wikis and blogs; software, documentation, bug reports or tests results for free/libre open source soft-

<sup>2</sup> From <http://stats.wikimedia.org/EN/TablesDatabaseEdits.htm> and <http://stats.wikimedia.org/EN/TablesWikipediansContributors.htm>.

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<sup>1</sup> From <http://lifehacker.com/133747>. Included with permission from the author.

ware (FLOSS) development; or videos or photos on sites such as YouTube or Flickr. The focus of the paper is on positive contributions that occur either by adding to a collective output or editing contributions for the benefits of the project. We do not address the question of motives for (or ways to discourage) negative contributions, such as Wikipedia vandalism. Nor do we theorize about the quality of contributions, i.e., to distinguish why some contributions may be more or less popular.

The main contribution of the paper is to argue and empirically show that what was previously considered a single, static and individual phenomenon, namely motivation for contribution to UGC, is in fact three separate but interrelated phenomena with separate motives for initial, sustained and meta-contribution (i.e., contributions that structure and enable further contributions (Bryant et al., 2005)).

## 2. Conceptual framework

In this section, we develop our theory by identifying and organizing motives for contribution to user generated content. The model is based on one proposed by Crowston and Fagnot (2008). Our first and primary contribution is to distinguish motives that operate at different individual stages of contribution to UGC projects. Distinguishing different stages of individual contribution acknowledges the common observation that the distribution of contributions to UGC is quite skewed, with a few people doing most work, and most people doing little or none. For example, Mockus et al. (2000), in their study of the development of the Apache web server, observed that the top 15 contributors (out of 388 total) contributed over 83% of modification requests and 66% of problem reports. On Wikipedia, only 25% of registered users have edited 10 times or more, and 2.4% of users have contributed 80% of the edits.<sup>3</sup> Arazy et al. (2017) found that 89% of Wikipedia editors were active only in a single article. Skewed distributions are not restricted to online settings: Reed and Selbee (2001) state that “in Canada in 2000, 18% of adults were responsible for 80% of all money donated to organized charities, 9% accounted for 80% of hours volunteered and 21% accounted for 65% of civic participation.”

However, despite its ubiquity, this skewed pattern of contribution seems not to have been considered in prior work on motivations in voluntary collaborations. An exception is Preece and Shneiderman (2009), who noted a possible progression of participation in online groups from “reader to leader” characterized by different activities and motives at each stage. Studies of motivation generally assume that all contributors are alike, either in theorizing about motivations or in empirical study, e.g., statistical analyses of motivation that expect a volunteer with thousands of contributions to simply have more of the motives than a volunteer with one.

To address these skewed distributions, our model distinguishes three stages of contributions, which we label initial, sustained and meta-contribution. We propose an overall framework for synthesizing diverse motives for contribution, but then differentiate motives that are relevant for the individual at the different stages, resulting in three distinct models of motivations.

Of course, the volume of contribution varies continuously across members of a project, so any grouping into distinct categories is a theoretical abstraction. However, we argue that the three proposed stages of contribution do exhibit distinct patterns of involvement with different motivations, making the theoretical abstraction meaningful. That is, we explicitly argue that the motivations to make a first contribution are not the same as the motivations to make additional contributions: it is not simply the case that sustained contributors have higher levels of the motivations that impel an initial contribution. Similarly, the motivations for making meta-contributions are not just more of the motivations to contribute in other ways. In line with our basic argument—that motivation for contribution to UGC is actually a set of inter-

related phenomena—we draw on different theories to explain contributions at different stages. Specifically, we incorporate theories of helping behaviour (Schwartz and Howard, 1982) and social movements theory (Klandermans, 1997).

We start with helping behaviour. As noted above, contributions to UGC are mostly unpaid. As a result, we are interested in the phenomenon of voluntary participation from virtual team members in UGC and view UGCs as a form of voluntary organization, that is to say, “an activity that produces goods and services at below market rate” (Wilson, 2000). Wilson (2000) describes volunteering as “part of a cluster of helping behaviours, entailing more commitment than spontaneous assistance but narrower in scope than the care provided to family and friends” (p. 215). Given this view, we use the theory of helping behaviours to structure our analysis of motives for contribution. Research on helping behaviours suggests that such behaviour results from the satisfaction of four precursor conditions (Schwartz and Howard, 1982):

1. First, an individual must recognize a need in the others to be helped. This condition, called *attention*, focuses on recognizing situational cues that suggest the need for a helping response. These situational cues vary in salience and seriousness.
2. Second, an individual must have *an impetus* to respond, arising from a combination of feelings of social obligation and/or responsibility together with a self-perceived capability to respond. The capability to respond arises from the volunteer’s resources (Uslaner, 2003) and skills and knowledge relevant to the voluntary role (Wilson, 2000).
3. Third, individuals weigh the obligation and capability of helping against the social and tangible costs of doing so in a phase called *evaluation* (Schwartz and Howard, 1982). Helping has some costs but may also have benefits to the volunteer. Unlike much of the literature on helping behaviours that has examined crisis situations requiring quick decisions, evaluation of volunteering can be done deliberately over time.
4. Finally, in cases where individuals opt not to help the person in need, a series of psychological *defence mechanisms* occur in which the individual self-justifies why a helping response was not needed (Schwartz and Howard, 1980). Given our focus on motives that distinguish those who decide to contribute, we do not examine this stage further in our theorizing.

### 2.1. Stage theories

We develop our theory as a stage theory. Most commonly used theories in group research are continuum theories rather than stage theories. Continuum theories are expressed as a set of factors that collectively predict an outcome, e.g., the probability that a person will enact a specific behaviour. Examples of such theories are the Theory of Reasoned Action (Fishbein and Ajzen, 1975) or the Theory of Planned Behaviour (Ajzen and Madden, 1986). Continuum theories are useful in explaining behaviour or in suggesting which interventions (changes in input factors) will be effective in achieving a desired outcome (e.g., a particular behaviour). However, Weinstein et al. (1998) identify several limitations of continuum theories: they do not account for the fact that variables have limits (i.e., once a threshold in some input is reached, further increases may have no further effect); they assume there is no need to match interventions to the specific situations of different people; and they assume there is no need to sequence interventions. In contrast, stage theories assume that people move through distinct stages of behaviour, with different factors being important in different stages. For instance, in a well-known stage theory, Tuckman and Jensen (1977) suggested that small group development goes through five distinct stages. In our theory, UGC team members are seen as moving from one stage of contribution to another, with different motivation relevant as they change stages.

According to Weinstein et al. (1998) the requirements for a stage theory are as follows: 1) a classification system to define the stages; 2)

<sup>3</sup> <http://stats.wikimedia.org/EN/TablesWikipediaEN.htm>.

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