
Elisabeth Joyce¹, Jacqueline C. Pike², and Brian S. Butler³

Abstract

Deliberative mass collaboration systems, such as Wikipedia, are characterized as undisciplined, unstructured social spaces where individuals participate in collective action. However, examination of Wikipedia reveals that it contains a bureaucratic structure, which ensures that collective goals are primary drivers of that collective action. To support large-scale activity, deliberative mass collaboration systems must provide ways of reconciling the tension between individual agency and collective goals. Wikipedia’s unusual policy, ignore all rules (IAR), serves as this tension release mechanism. IAR supports individual agency when positions taken by participants might conflict with those reflected in established rules. Hypotheses are tested with Wikipedia data regarding individual agency, bureaucratic processes, and IAR invocation during the content exclusion process. Findings indicate that in Wikipedia each utterance matters in deliberations, rules matter in deliberations, and IAR citation magnifies individual influence but also reinforces bureaucracy.

Keywords
mass collaboration, governance, wikis, bureaucracy

Mass collaboration systems use Internet technologies to support the aggregation of scores of individuals’ efforts. For many, Wikipedia is the prototypical example of a

¹Edinboro University of Pennsylvania, Edinboro, PA, USA
²Duquesne University, Pittsburgh, PA, USA
³University of Maryland, College Park, MD, USA

Corresponding Author:
Elisabeth Joyce, Edinboro University of Pennsylvania, 219 Meadville Street, Edinboro, PA 16412, USA.
Email: ejoyce@edinboro.edu
mass collaboration system because of its scale, visibility, and ubiquity. Over the past 10 years, Wikipedia has successfully mobilized and organized the activities of hundreds of thousands of otherwise unconnected volunteers to create a network of online encyclopedias—compilations of articles that are used by millions of people worldwide as sources of information. Using information and communication technologies, mass collaboration systems like Wikipedia are able to coordinate highly distributed, latent resources present in the “crowd” to create valuable resources and solve problems (Shirky, 2008; Tapscott & Williams, 2008).

An important feature of mass collaboration is these discrete efforts on the parts of volunteering individuals (Benkler, 2007; Bruns, 2008). Opening the system to contributions by all interested participants develops greater engagement in the organization through its support and encouragement of the agency of each member. Wikipedia, in particular, is explicitly welcoming to contributions of any kind and on any level by anyone who is inclined to add to it. Any editor can edit any article, including (with some caveats) those about himself or herself. Any editor can also participate in deliberations that lead to decisions about all features of the community, from contents of articles to whether articles are appropriate for inclusion in the encyclopedia. An important part of Wikipedia’s support for individual agency is its self-governance. Any editor can participate in the creation, modification, deliberation, and/or application of rules that guide the organization. This ownership of the freedom to participate and the form of that participation supports individual agency in Wikipedia.

However, self-governance, in its development of policies, creates the structure of a formal bureaucracy (Aaltonen & Lanzara, 2010), and indeed it is possible that it must adopt that kind of structure, for some force must serve to coordinate nodal and dispersed activities to create the organic entity of the community. A formal bureaucracy entails the efficient acquisition of collective goals through role assignment and rule following. Wikipedia bears elements of bureaucracy in that it has special roles, such as those of administrators, with specific responsibilities and rules. Furthermore, it has carefully outlined selection procedures for filling those roles. In regard to rules, the Wikipedia community maintains a phalanx of policies and guidelines; it has developed a full-scale system of governance on the basis of those rules and devised explicit forms of behavior that are embedded in standard operating procedures. Thus, Wikipedia has structural elements like those found in traditional formal organizations (Kriplean, Beschastnikh, McDonald, & Golder, 2007; Loubser & den Besten, 2008). The logic of a bureaucracy is that standardized, role-limited decision making is based on rule following focused on collective goals.

The trouble is that a bureaucratic structure, in its rule and role organization, constrains individual agency (Benkler, 2007; Gillespie, 2006; Lehman & Ramanujam, 2009). Wikipedia is notable because it succeeds in creating a sociotechnical system in which the seemingly contradictory logics of open participation and role-constrained, rule-based decision making can coexist; it is a deliberative bureaucracy. A tension exists, however, between the rigid nature of a policy system and encouragement for individual agency because policies not only do not address all contexts adequately
(Desai, 2010), but also constrain the actions of the individual (Adler, 2012; Lehman & Ramanujam, 2009; O’Mahony & Ferraro, 2007). The tension between the desire for active individual agency and the need for bureaucratic structures and functions focused on collective goals manifests itself in Wikipedia in the context of deliberations about the encyclopedia content that are critical to achieving its goal. These deliberations contain features of formal bureaucracy with clearly delineated processes and rules; yet the decision about the article’s fate is reached through participation of individual voluntary statements of opinion with general encouragement of each voice.

The research question considered in this article is how Wikipedia manages the fundamental tension between the encouragement of untrammeled individual participation and the constraints established by formal bureaucracy that arise when making decisions about content exclusion (i.e., proposed articles for deletion, or AfDs). Decisions regarding content exclusion directly affect Wikipedia’s ability to achieve its goal of providing a high-quality and comprehensive encyclopedia. In particular, we focus on the role that the Wikipedia ignore all rules (IAR) policy serves in resolving this tension, as it is paradoxically both a policy, and therefore a fundamental component of the bureaucratic structure, and a free pass for an editor to move forward in spite of rules that might be blocking an action if he or she risks interfering with the goals of the encyclopedia project to produce high-quality articles. IAR is, therefore, also a fundamental component of individual agency.

Wikipedia and Individual Agency

A key valued feature of self-governed mass collaboration systems is their support for individual agency (Benkler, 2007; Bruns, 2008; Spehr & Windszus, 2004; Tapscott & Williams, 2008; Tkacz, 2010). Wikipedia supports individual agency by facilitating active contributions across the spectrum of the organization. Editors’ concerns with issues ranging from the content of articles to the functioning of the encyclopedia are voiced through group discussions. A chief principle of Wikipedia is that all interested parties may participate in the organization in a variety of functions, from creating and editing articles, to shaping and debating policy. All may participate in these discussions, each participant’s voice is equally considered, and decisions are reached through consensus. The encyclopedia states on its main page that all can participate: “the free encyclopedia that anyone can edit.” The introduction to Wikipedia also emphasizes this point: “Anyone can edit almost every page.” And the editing help page clarifies this caveat, that “Wikipedia is a wiki, meaning that anyone can edit any unprotected page.” The system confirms this attitude by permitting anyone to edit an unprotected page without registering with the organization or logging into the community.

Support for individual action and participation can also be seen in the policy and materials surrounding decisions about articles proposed for deletion. The deletion policy, which houses the AfD process, uses deliberation terms in its first paragraph: debate, community consensus, and discuss. The Wikietiquette section of the page says
that “while [an] AfD may look like a voting process, it does not operate like one. Justification and evidence for a response carries far more weight than the response itself.” In stating one’s position on keeping or deleting an article in AfD discussions, an editor will state “keep” or “delete” in bold characters before explaining this opinion. The discussion procedure section of the page identifies AfDs as “a place for rational discussion.” AfD deliberations are described as allowing all to participate, to speak, and to question each other, the policy, and the article of concern; consensus is to drive all decisions; and rationality is to underpin all of those deliberations. The Guide to Deletion page explicitly says, “The purpose of the discussion is to achieve consensus upon a course of action.”

Although the prominence of these principles in Wikipedia’s documentation and policy system demonstrates that the Wikipedia community seeks to instantiate them in the governance of their community, there remains the possibility of a gap between intention and realized activities. To test the proposition that Wikipedia supports individual agency, at least in the context of AfDs, we examine several hypotheses regarding the relationship between activity in the AfD deliberations and the decision.

Even though editorial stances are not considered to be literal votes, these articulations of “keep” or “delete” in AfD deliberations are clear statements made by individuals about their position with regard to a pending collective decision. And although a deliberation is much more than a simple vote tabulation, the underlying principles imply that if individual agency is indeed being promoted, statements of individuals’ positions should factor into the ultimate decision (Sharrock & Button, 1997). Prior studies of other aspects of Wikipedia have found that the number of votes in favor of different outcomes is a positive predictor of collective decisions (Taraborelli & Ciampaglia, 2010). These structures are decentralized and developed through deliberation and consensus (Aaltonen & Lanzara, 2010; Wagner & Prasarnphanich, 2007). Thus, in a deliberation regarding content exclusion in Wikipedia, we expect that votes in favor of deleting an article will be associated with an article being deleted, and votes in favor of keeping an article will be associated with an article being kept.

**Hypothesis 1 (H1):** In content exclusion deliberations, the number of votes in favor of a particular outcome will be positively associated with that outcome.

The principles articulated in the AfD process suggest that, more than just vote tallies, the nature of the deliberation contributions themselves is likely to influence the outcome of the collective decisions. The policy explicitly states, “The debate is not a vote.” The debate includes two types of contributions—votes and comments. In a deliberation that supports individual agency, the positions and arguments presented in votes and comments in the discussion about a decision will themselves have a discernible influence on the decision outcome. Thus, in a deliberation regarding content exclusion in Wikipedia, we expect that comments in favor of deleting an article will be associated with an article being deleted, and comments in favor of keeping an article will be associated with an article being kept.
Hypothesis 2 (H2): In content exclusion deliberations, the number of comments in favor of a particular outcome will be positively associated with that outcome.

Wikipedia as a Bureaucracy

A bureaucracy organizes its efforts toward collective goals (Cyert & March, 1963; Kallinikos, 2004; March & Simon, 1993), to the creation and dissemination of a product or service, whether material or virtual. Formal bureaucracies carry out these efforts through such embedded structures as rule and procedural systems and hierarchies. These structures lead to greater efficiency, knowledge retention, and goal focus. In bureaucracies, standardized decision making is based on the acceptance on the part of the organization’s members of distinct roles and the essential edict to follow designated rules.

Rules

Rules in bureaucracies are “instrumentally rational” (Weber, 1958). They are a rational coordination mechanism that improves the operation of the organization (Kellogg, Orlikowski, & Yates, 2006) by preventing groups and individuals from having to start the work of creating process anew on every occasion, and in doing so, rules reduce effort and increase standardization. Rules perform various functions in an organization, from setting up legitimacy (Meyer & Rowan, 1977; J. D. Thompson, 1967; Zhou, 1993), routines (Levitt & March, 1988), and organizational memory (Levitt & March, 1988), to establishing communal norms of cultures and behaviors (Beschastnikh, Kriplean, & McDonald, 2008). A rule-oriented organization sets out precedents clearly and explicitly and describes procedures to maximize the efficiency with which it can achieve collective goals and sustain the organization’s overall effort. This type of organization sets up a norm of following the rules so that following them becomes compulsory and questioning them is not supported.

Wikipedia and other mass collaboration systems rely on forms of a Weberian bureaucracy, the prototype of formal organization (Kriplean et al., 2007; Loubser & den Besten, 2008), and in fact mass collaboration systems have to have these structures; otherwise they will not be sustainable (Kim, 2000). Order in Wikipedia is maintained through administrative procedure (Viégas, Wattenberg, Kriss, & van Ham, 2007). Examination of the administrative structures of Wikipedia reveals a comparably complex structure of rules and policies. There were more than 50 wiki pages in the “Wikipedia Official Policy” category as of March 2012. There were over 35 wiki pages categorized as “Wikipedia guidelines.” In addition, these do not seem to be sufficient, since there were 174 pending proposals for policies and guidelines, not to mention the 440 rejected proposals for policies and guidelines.

The AfD process is reflective of formal bureaucracy. It is tied to a formal policy, and as such it relies on the imperative voice to convey orders: read, carry, consider,
search. Also, the deletion policy that lays out the AfD process includes admonishing language, such as “do not add,” “do not reorder,” “do not message,” and “avoid.” Whenever editors take positions on whether or not an article should be deleted, they must, as the deletion policy states, “explain how the article meets/violates policy.” Considering that Wikipedia reflects the elements of a formal bureaucracy, we expect in a deliberation regarding content exclusion that the citation of a rule in favor of deleting an article will be associated with an article being deleted, and the citation of a rule in favor of keeping an article will be associated with an article being kept.

Hypothesis 3 (H3): In a deliberation, the citation of a rule in favor of a particular outcome is positively associated with that outcome.

Roles
In addition to a governance structure, a bureaucracy must be built out of an authority structure (Weber, 1958). This structure designates particular responsibilities to organizational members according to their position in the hierarchy. The official accrues status through social and organizational recognition of the hierarchical position. The position of administrator carries specific tasks and functions with it. Those members in positions of lower authority submit to those in higher authority. Decisions involving meeting the goals of the organization are made by those in higher ranking status functions in it (Merton, 1957; Meyer & Rowan, 1977; Weber, 1958). An organization with a hierarchical role structure constrains who can do what in the organization, suppressing participation.

In addition to a defined rule structure, Wikipedia maintains a role structure that is explicitly defined. Roles include unregistered users, registered accounts, bots, Administrators, Bureaucrats, Stewards, Checkusers, and the very special Founder group, which consists solely of Jimbo Wales. Each role provides particular jobs and privileges, carefully and completely identified on the user access levels page and the user group rights page (Thompson, 2008). Roles are deeply related to the rule structure as shown by the imprimatur of the administrator’s role as official Wikipedia policy (Forte, Larco & Bruckman, 2009). Although this policy identifies the process to become an administrator and all admin responsibilities, it also emphasizes the elevated status of this position through warnings about wielding power carefully and through reminders that the administrator serves in and through a system of rules that curb behavior: “be sure you appreciate the importance of our other policies. Policy is often smarter than you think” (Schneider & Passant, 2011).

The AfD process is formally bureaucratic, too, in its reliance on roles and status in the organization. With rare exceptions, only an Administrator can make the final call about whether to keep or delete an article: “After seven days, an uninvolved admin (i.e., one who has not participated in the deletion discussion) will assess the discussion.” If it is true that Wikipedia in general and AfDs in particular are shaped through features of formal bureaucracy, then reliance on roles should make a difference in decisions, giving greater influence to votes or comments for or against a decision that are made by an individual with a special role. Thus, in a deliberation regarding content
exclusion in Wikipedia, we expect that votes or comments (i.e., utterances) by an
administrator in favor of deleting an article will be associated with an article being
deleted, and votes or comments by an administrator in favor of keeping an article will
be associated with an article being kept.

**Hypothesis 4 (H4):** In content exclusion deliberations, an utterance by an admin-
istrator for a particular outcome is positively associated with that particular
outcome.

**Formal Bureaucracy and Individual Agency Hybridity**

The presence of a well-developed, formal rule and role system within Wikipedia sug-
suggests that, whether or not mass collaboration systems are fundamentally new ways of
organizing, they are subject to a basic tension between the empowerment of the indi-
vidual and the functioning of the system as a whole (Benkler, 2007; Beschastnikh
et al., 2008; Gillespie, 2006; M. Thompson, 2005). Because mass collaboration sys-
tems rely on an aggregation of voluntary individual contributions on a large scale
through technology, the agency of the individual is central to the operation of these
systems and cannot be ignored. In fact, it has been argued that many of these systems
fail because individuals do not feel sufficiently empowered to participate in the sys-

tem (Tapscott & Williams, 2008). At the same time, because mass collaboration sys-
tems seek to create and maintain complex artifacts, they must also function in ways
that reflect the needs of the larger system. Goals, procedures, rules, and roles focused
on the survival of the collaborative effort will tend to favor the group over the indi-
vidual (Zhou, 1993) and are necessary for maintaining it over the long term
(O’Mahony & Ferraro, 2007). However, mass collaboration systems have to have
these structures; otherwise they will not be sustainable (Kim, 2000). This implies that
when creating mass collaboration systems, it is necessary to think about empowering
individual choice and upholding bureaucratic structures not as dichotomous alterna-
tives, but rather as conflicting features that must be simultaneously maintained.

Rules are sites where the tension between individual choice and bureaucratic struc-
tures comes together (Cyert & March, 1963). Rules are formally accepted, explicit
statements of expected behavior that are inherently predisposed toward the collective
and formal bureaucratic aspects of the organization (Lehman & Ramanujam, 2009;
March, 1997). When rules are followed, the formal organization is often limiting indi-

dividuals’ agency. Having a system of rules benefits the organization in that it creates
opportunities to generalize across situations, creating standardization and increasing
efficiency, and citing rules in arguing for a position can facilitate self-empowerment
(Beschastnikh et al., 2008; D. Thompson, 2008). Yet individuals faced with general
rules often find that even in the best cases, rules match the needs of a situation imper-
fectly, whereas in the worst cases, they lead to nonsensical, dysfunctional outcomes.

Previous research has shown that Wikipedia addresses the constraints posed by
inaccurate rule sets through “scaling consensus” (Forte, Larco, & Bruckman, 2009)
by providing sites for deliberations at low levels in the organization, so that procedures and processes can be tailored to the particular context. However, Wikipedia has developed another solution to these mismatches in its promotion of officially recognized rule ignoring. Ignoring a rule is the normally the assertion that a rule should not be applied in a certain situation even if it is relevant. Wikipedia has an explicit policy that encourages individual rule exceptions: IAR. IAR argues that a rule is irrelevant at a particular moment in time: “If a rule prevents you from improving or maintaining Wikipedia, ignore it.” Wikipedia not only has an explicit policy to ignore rules, it openly encourages editors not to ignore all rules all the time, but to consider the possibility of violating a rule if the context of the moment suggests that following it would lead to undesirable consequences. A rule such as IAR is a logical impossibility because more than simply tolerating individual rule exceptions, IAR makes rule violation an expected behavior, one that is explicitly incorporated into the rule system. Individual agency encourages no constraints on expression; rule following constrains what can be expressed. IAR opens up permission to deliberate and to situationally reject a rule without rejecting the rule system as a whole. IAR is therefore paradoxical in that it is officially recognized rule ignoring that does not become routine, but it is legitimized in the sense that the community officially supports its application.

Ignoring a rule is difficult for an organization to manage. IAR says that anyone can question any rule in support of greater individual empowerment. However, questioning rules could damage a system, so the problem posed and solved at once by IAR is how to let anyone openly question any rule while protecting the rule system. IAR does this because it does not argue for a rejection of the entire rule system; it merely provides the opportunity to question one rule at a particular moment, providing individual agency within the constraints of the rule system. IAR is a feature that may be valuable for the deliberative part of the organization but would be nonsensical for the bureaucratic part. If IAR is cited in discourse, it should, therefore, improve discourse, permit the questioning of procedure, and improve deliberation, serving to support individual agency. If IAR supports individual agency, we expect in a deliberation regarding content exclusion that the citation of the IAR policy in favor of deleting an article will be associated with an article being deleted, and the citation of the IAR policy in favor of keeping an article will be associated with an article being kept.

*Hypothesis 5 (H5):* In content exclusion deliberations, an utterance that cites the IAR policy in favor of a particular outcome is positively associated with that particular outcome.

Since IAR is also a rule, it should support formal bureaucracy in the organization as well. It should, therefore, add greater influence to policy citation in the deliberation. Thus, we would expect in a deliberation regarding content exclusion that the citation of a rule alongside IAR in favor of deleting an article is associated with an article being deleted, and the citation of a rule alongside IAR in favor of keeping an article is associated with an article being kept. In the complexity of its rule system, Wikipedia has
developed distinct categories of rules: those controlling article content and those controlling behavior. The behavioral policies explicitly support individual agency, as in be bold, consensus, and assume good faith. These are guides to how to be an active and engaged participant, to be free to speak, act, write, and contribute to the encyclopedia. The content policies, on the other hand, are more bureaucratic in nature. These include notability, neutral point of view, no original research, and verifiability. These are the policies that constrain individual behavior the most, creating the greatest tension among the policy applications, and therefore the most likely to respond to the alleviating functions of ignoring a rule.

Hypothesis 6 (H6): In content exclusion deliberations, the citation of IAR with a content-focused policy in favor of a particular outcome is positively associated with that particular outcome.

Further acting as an effective component of a formal bureaucracy, IAR should reinforce the bureaucratic structure in terms of roles. If roles matter in Wikipedia, therefore, IAR should give greater influence to individuals with authority. Thus, we expect in a deliberation regarding content exclusion that an utterance by an administrator that contains IAR and favors deleting an article will be associated with an article being deleted, and an utterance by an administrator that contains IAR and favors keeping an article will be associated with an article being kept.

Hypothesis 7 (H7): In content exclusion deliberations, an utterance by an administrator who cites IAR for a particular outcome is positively associated with that particular outcome.

Wikipedia is a hybrid deliberative bureaucracy in that it is attempting to develop and sustain a long-lived organization while protecting and supporting the voice of the individual participant. It is in the instance of IAR where this tension is resolved. Through this empirical study, we test these hypotheses using data from the discussions toward consensus in Wikipedia’s AfD process.

Data and Method

This study focuses on the AfD process because it is critical to the ongoing success, survival, identity, and effectiveness of Wikipedia as a knowledge source and a community (Schneider & Passant, 2011). The AfD process in Wikipedia is important because it structures debate about whether an article merits inclusion or exclusion from the encyclopedia. Editors create AfD proposals that include specific reasons, such as the violation of a particular Wikipedia policy, as to why a page is being proposed for deletion. In the deliberation, participants indicate their opinion through what appear to be votes but are actually referred to in Wikipedia as !votes (read “not votes”), an indication of the stress on debate over polling.1 Participants can vote only
once, but they can post any number of comments for or against keeping the article. After 7 days of discussion, the AfD is closed by an administrator who decides the outcome, not strictly on the basis of vote counts, but based on his or her assessment of consensus. An excerpt from an AfD deliberation is shown and annotated in Figure 1 to highlight these features. The AfD proposals are quite active; the number of articles recommended for deletion varies but averages between 80 and 90 per day. The AfD deliberations are also a place where many policies come into play, and editors may also advocate for violating a policy, often citing the IAR policy as a rationale.

Sample
To construct a suitable data set, disproportionate stratified random sampling was used (Bernard, 2000). Although AfD proposals are common, explicit citations of the IAR policy are underrepresented in the population and appear in only a small subset of the AfD proposals. AfDs with explicit citations of the IAR policy are an important subpopulation in this study, thus two strata were created: (a) AfD proposals that explicitly cited the IAR policy and (b) AfD proposals that did not explicitly cite the IAR policy but were data controlled with the IAR-citing AfDs. Equal allocation was used to facilitate between-strata analyses and detailed analyses within strata, and thus a disproportionate number of these IAR-citing AfDs are included in the final sample. A stratified approach is also most effective when the variable used to stratify the population is correlated with the dependent variable, and this is the case in the data set.

The result of this procedure was a total sample of 588 AfD discussions that served as the basis for the analysis data set. These AfD discussions included more than 16,000 utterances made by editors of Wikipedia, which were aggregated in the data set.

Data and Measures
Raw data was downloaded from Wikipedia and consisted of archived AfD discussions. Each AfD discussion included the initial proposal, individual votes and comments recommending strategies for handling the article, and the conclusion reached by the closing administrator. The analysis data set was constructed manually based on the raw data described. Outcome, the dependent variable, was measured by recording the outcome of the AfD discussion (0 = delete, 1 = keep). AfD discussions that did not result in a clear delete or keep consensus, where the IAR policy was not cited in a delete or keep vote (i.e., IAR was cited in the proposal or conclusion of the AfD), or where there was no deliberation (58 cases), were dropped, leaving a data set of 530 discussions. Each measure utilized is described in Table 1. For the policy citation hypotheses, the notability policy was selected because it was the most frequently cited policy in the AfD discussions. An overwhelming majority of policy citations cited notability, and the citations for other policies amounted to a few for each policy.
Figure 1. Annotated sample article for deletion deliberation.
Results

Linear probability models were used to test for the hypothesized relationships in the collected data. Although usually logit and probit models are used when the dependent variable is dichotomous, linear probability models were chosen instead because of issues and problems (Hoetker, 2007) associated with interpretation of interaction effects in logic and probit models. All hypotheses involved interpretation of interaction effects—the interactions were calculated at the utterance level and then aggregated into the totals. Linear probability models avoid the problems put forth by the logit and probit models because only linear terms are included in the interactions. All models were estimated using ordinary least squares regression in SPSS Version 20. For all of the models reported, the variance inflation factors were low and multicollinearity was not of issue.

Table 1. Measures.

<table>
<thead>
<tr>
<th>Measure name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome</td>
<td>Outcome of the discussion, either 0 for delete the article or 1 for keep the article</td>
</tr>
<tr>
<td>Total delete votes</td>
<td>Total number of delete votes in the AfD</td>
</tr>
<tr>
<td>Total keep votes</td>
<td>Total number of keep votes in the AfD</td>
</tr>
<tr>
<td>Total delete comments</td>
<td>Total number of delete comments in the AfD</td>
</tr>
<tr>
<td>Total keep comments</td>
<td>Total number of keep comments in the AfD</td>
</tr>
<tr>
<td>Total delete utterances with IAR</td>
<td>Total number of utterances advocating delete and citing the IAR policy in the AfD</td>
</tr>
<tr>
<td>Total keep utterances with IAR</td>
<td>Total number of utterances advocating keep and citing the IAR policy in the AfD</td>
</tr>
<tr>
<td>Total delete utterances with notability</td>
<td>Total number of utterances advocating delete and citing the notability policy in the AfD</td>
</tr>
<tr>
<td>Total keep utterances with notability</td>
<td>Total number of utterances advocating keep and citing the notability policy in the AfD</td>
</tr>
<tr>
<td>Total delete utterances with notability and IAR</td>
<td>Total number of utterances advocating delete and citing the notability and IAR policies in the AfD</td>
</tr>
<tr>
<td>Total keep utterances with notability and IAR</td>
<td>Total number of utterances advocating keep and citing the notability and IAR policies in the AfD</td>
</tr>
<tr>
<td>Total delete utterances by administrators</td>
<td>Total number of utterances advocating delete written by an administrator</td>
</tr>
<tr>
<td>Total keep utterances by administrators</td>
<td>Total number of utterances advocating keep written by an administrator</td>
</tr>
<tr>
<td>Total delete utterances by administrators with IAR</td>
<td>Total number of utterances advocating delete written by an administrator and citing the IAR policy</td>
</tr>
<tr>
<td>Total keep utterances by administrators with IAR</td>
<td>Total number of utterances advocating keep written by an administrator and citing the IAR policy</td>
</tr>
<tr>
<td>Date of the AfD</td>
<td>Control—date the AfD started</td>
</tr>
</tbody>
</table>

AfD = articles for deletion; IAR = ignore all rules.
Models testing H1, H2, H3, and H4 are presented in Table 2, with the baseline model in Model 1. H1 states that votes matter, and H2 states that comments matter in AfD discussions if Wikipedia is a deliberative democracy. To examine these hypotheses, we ran Models 2 and 3 shown in Table 2. Both of these hypotheses were supported (Table 2: Model 2, $\beta = -0.520^{**}$, $p < .01$, $\beta = 0.743^{**}$, $p < .01$; Model 3, $\beta = -0.515$, $p < .01$, $\beta = 0.754$, $p < .01$), and the $R^2$ increased from 0.10% in the base model to more than 42% for both models. This result indicates that votes and comments for and against keeping an article are correlated with the outcome of the deliberation.

H3 states that rules matter, and H4 states that roles matter if Wikipedia is a formal bureaucracy. To examine these hypotheses, we ran Models 4 and 5 shown in Table 2. H3 is supported (Table 2: Model 4, $\beta = -0.205^{**}$, $p < .01$, $\beta = 0.273^{**}$, $p < .01$), suggesting that rules serve to create formal bureaucracy in Wikipedia. H4, however, is not supported, suggesting that roles in Wikipedia do not bear the authority that they might in a formal bureaucracy.

The last three hypotheses explore the role of IAR in AfDs and to what degree IAR serves to mediate between the deliberative democracy and formal bureaucracy structures. H5 predicts that IAR will strengthen the power of votes and comments in deliberations. Based on Model 6, H5 was supported, showing that a keep vote or comment has a more influential impact when it cites IAR (Table 3: Model 6, $\beta = 0.108$, $p < .01$), and a delete vote or comment has a more influential impact when it cites IAR (Table 3: Model 6, $\beta = -0.079$, $p < .01$). This indicates that an AfD is significantly more likely

### Table 2. Models for Hypotheses 1, 2, 3, and 4.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1 (control)</th>
<th>Model 2 (H1)</th>
<th>Model 3 (H2)</th>
<th>Model 4 (H3)</th>
<th>Model 5 (H4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of AfD</td>
<td>0.057</td>
<td>0.014</td>
<td>0.025</td>
<td>0.008</td>
<td>0.013</td>
</tr>
<tr>
<td>Total delete votes</td>
<td>-0.520**</td>
<td>-0.514**</td>
<td>-0.481**</td>
<td>-0.535**</td>
<td></td>
</tr>
<tr>
<td>Total keep votes</td>
<td>0.743**</td>
<td>0.754**</td>
<td>0.627**</td>
<td>0.747**</td>
<td></td>
</tr>
<tr>
<td>Total delete comments</td>
<td>-0.437**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total keep comments</td>
<td>0.395**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total delete utterances with notability</td>
<td>-0.205**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total keep utterances with notability</td>
<td>0.273**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total delete utterances by administrators</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.033</td>
</tr>
<tr>
<td>Total keep utterances by administrators</td>
<td></td>
<td></td>
<td></td>
<td>-0.018</td>
<td></td>
</tr>
<tr>
<td>$R^2$ (%)</td>
<td>0.10</td>
<td>42.5</td>
<td>44.1</td>
<td>44.3</td>
<td>42.3</td>
</tr>
<tr>
<td>$F(1, 528) = 1.719$</td>
<td>($p = .19$)</td>
<td>($p &lt; .000$)</td>
<td>($p &lt; .000$)</td>
<td>($p &lt; .000$)</td>
<td>($p &lt; .000$)</td>
</tr>
<tr>
<td>$F(3, 526) = 131.092$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F(5, 524) = 84.588$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F(5, 224) = 78.579$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AfD = articles for deletion. DV = Outcome.

**p < .01.
to result in a delete outcome if an editor cites the IAR policy in a vote for delete, and an AfD is significantly more likely to result in a keep outcome if an editor cites IAR in a vote for keep.

H6 and H7 explore the impact of IAR on the features of formal bureaucracy in Wikipedia. Partial support was found for H6. H6 predicts that IAR will strengthen the power of votes and comments with a policy citation in deliberations. Support was found for H6 only for keep votes and comments (Table 3: Model 7, β = 0.110, \( p < .05 \)), suggesting that citing the notability and IAR policies in a keep vote or comment amplifies the influence of that vote or comment. H7 predicts that IAR will strengthen the power of votes and comments by an administrator in deliberations. In other words, the citation of IAR in a vote or comment written by an administrator will increase the likelihood of the AfD resulting in that vote or comment’s recommended outcome.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 6 (H5)</th>
<th>Model 7 (H6)</th>
<th>Model 8 (H7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of AfD</td>
<td>0.003</td>
<td>−0.006</td>
<td>0.010</td>
</tr>
<tr>
<td>Total delete votes</td>
<td>−0.497**</td>
<td>−0.447**</td>
<td>−0.511**</td>
</tr>
<tr>
<td>Total keep votes</td>
<td>0.699**</td>
<td>0.626**</td>
<td>0.720**</td>
</tr>
<tr>
<td>Total delete utterances with IAR</td>
<td>−0.079**</td>
<td>−0.061</td>
<td>−0.097*</td>
</tr>
<tr>
<td>Total keep utterances with IAR</td>
<td>0.108**</td>
<td>0.055</td>
<td>0.111**</td>
</tr>
<tr>
<td>Total delete utterances with notability</td>
<td>−0.218**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total keep utterances with notability</td>
<td></td>
<td>0.216**</td>
<td></td>
</tr>
<tr>
<td>Total delete utterances with notability and IAR</td>
<td></td>
<td>−0.003</td>
<td></td>
</tr>
<tr>
<td>Total keep utterances with notability and IAR</td>
<td></td>
<td>0.110*</td>
<td></td>
</tr>
<tr>
<td>Total delete utterances by administrators</td>
<td></td>
<td></td>
<td>0.022</td>
</tr>
<tr>
<td>Total keep utterances by administrators</td>
<td></td>
<td></td>
<td>−0.034</td>
</tr>
<tr>
<td>Total delete utterances by administrators with IAR</td>
<td></td>
<td></td>
<td>0.064†</td>
</tr>
<tr>
<td>Total keep utterances by administrators with IAR</td>
<td></td>
<td></td>
<td>0.008</td>
</tr>
</tbody>
</table>

\( R^2 (%) \) 43.2 45.0 44.2

\( F(5, 524) = 81.579 \) \( F(9, 520) = 49.063 \) \( F(9, 520) = 45.794 \)

\( (p < .000) \) \( (p < .000) \) \( (p < .000) \)

AfD = articles for deletion; IAR = ignore all rules. DV = Outcome.

†p < .10. *p < .05. **p < .01.
Significant results occurred in the opposite direction than predicted for H7 only for delete votes and comments (Table 3: Model 8, $\beta = 0.064$, $p < .10$), suggesting that a delete vote or comment written by an administrator citing IAR sways the deliberation toward keeping the article. For Models 6, 7, and 8, the $R^2$ increased from 0.10% in the base model to more than 43% for each model. It is important to note that given the nature of the hypotheses and the different data sets needed to test them, no unified model is presented and each model should be considered separately.

Discussion

Wikipedia is a deliberative bureaucracy. It supports individual agency in that decisions in AfD proposals are made through consensus with universal and equal participation and care is taken over time to create mutual understanding and agreement. The results clearly show that votes matter, but that comments also matter, and that the deliberation as a whole leads to consensus (Maleewong, Anutariya, & Wuwongse, 2011).

Wikipedia is also a formal bureaucracy in that it has a structured system of rules and roles that designate procedures and responsibilities. The results show that the impact of this structure is not as clear as that of the encouragement of individual agency. Being an administrator, for instance, does not give a participant’s expression of opinion greater power. Rules have influence in the AfDs, though, in that citing the Notability policy in favor of an outcome will make it more likely to have that outcome occur. This is a double-edged sword, however, because post hoc analyses reveal that there is a correlation between citations of the notability policy and smaller deliberations, enhancing the influence of each vote and comment.

There is an inherent conflict between the centralized structures of the bureaucracy and the decentralized operations of the individual. Individuals are empowered through free access to decision making and institutionalized respect for all opinions. Formal bureaucracy constrains the individual through rules and roles in support of the organization’s goals. Wikipedia’s IAR policy appears to resolve this tension in ways not predicted by the hypotheses, by strengthening the efficacy of the individual and diminishing that of the bureaucracy. Results show that citing IAR in a vote or comment for a particular outcome strengthens the influence of that vote or comment, moving toward the favored outcome and demonstrating IAR’s allegiance to the promotion of individual agency.

Where those features of formal bureaucracy do have an impact on the deliberation’s outcome, they result in conservative outcomes. Articles proposed for deletion are set up for a process to remove them from the encyclopedia, so a force must be galvanized to retain them. Since utterances in favor of keeping an article that cite IAR in tandem with the content policy notability are correlated with the outcome of keeping the article proposed for deletion, the two policies—one to question the rules and the other to reinforce them—counteract that inertia to delete the article.
The same results hold true when a Wikipedia administrator cites IAR in an effort to delete the article. These instances lead to the paradox of the greater likelihood of article retention. In this case it would appear that IAR undermines the ability of the administrator to wield power in the organization, stripping the hierarchical structure of embedded power systems. However, it is important to emphasize that although status may not play a part in the deliberations, it does determine which individuals may close these decisions: Wikipedia administrators are the final arbiters in the AfD procedures. Like any judge, they reflect on those bearing witness: the voters and commenters in the discussion. Also, it is important to note that in situations where no clear consensus has been reached in the deliberation, the closing administrator will admit that state and close the deliberation and keep the article. Deleting an article can occur only if consensus is clear in that direction; keeping an article occurs in cases of clear consensus to keep as well as in situations of unclear consensus. It is possible that both of these features—determining administrator and keeping the articles in controversial contexts—could muddy these results. Further research might attend to these questions, to identify more clearly the role of power and hierarchy (Dahlberg, 2007) in self-governed mass collaborations like Wikipedia.

Conclusion

Wikipedia is a hybrid deliberative bureaucracy. Decisions are reached in the organization through the active participation of all interested parties; yet, structuring the procedures for that participation derives from rule and role structures. IAR serves to protect the system from devolving into a formal bureaucracy, maintaining the option of all to participate and be heard. Yet, at the same time, IAR appears to use the force of bureaucratic features of procedures and status to retain valued content in the encyclopedia. Wikipedia, therefore, provides support for individual agency through decentralization and at the same time for group governance through centralization. It overcomes the dualism of the imposed structure and individual experience (Engestrom, 1999; Spehr & Windszus, 2004) by creating a hybrid form where individual and group identity coexist (van Dijck, 2009) and developing an innovative tool to address the natural tensions arising between those forms of organizing.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work is partially supported by the National Science Foundation under Grant No. (OCI-0951630).

Notes

1. For the purposes of this article, we refer to them as votes with the recognition that they are not treated this way in Wikipedia.
To control for variations in the environment across time, AfDs for the non-IAR citing stratum were randomly sampled from the same dates as the IAR citing stratum. For example, if an IAR citing AfD was sampled from February 1, 2007, then an AfD for the non-IAR citing stratum was randomly selected from the AfDs on February 1, 2007. Stratified sampling allows the use of different sampling techniques for different stratum.

References


**Author Biographies**

**Elisabeth Joyce** is a Professor in the Department of English and Theatre Arts at Edinboro University of Pennsylvania. Her research focus has been on governance in mass collaboration systems. In addition to her work on online communities, she has written two books of literary criticism on twentieth-century American poetry.

**Jacqueline C. Pike** is an Assistant Professor of Information Systems Management in the Palumbo Donahue School of Business at Duquesne University. In her research, Pike studies emerging technology and how different user groups engage it to accomplish tasks. Her current research interests include behavior in public online communities and social computing environments, the utilization of public online communities and mass collaboration systems by organizations, and the visual display of information in a systems context. Pike has conducted research related to Facebook, LinkedIn, and Wikipedia. Her work has appeared in *MIS Quarterly* and *JCMC*.

**Brian S. Butler** is an Associate Professor in the College of Information Studies and Associate Professor of Information Systems in the Robert H. Smith School of Business at the University of Maryland. His work focuses on the interplay between technology and organizing. He has worked with online communities and social computing since the mid-1990’s. His work, which has appeared in *Information Systems Research, MIS Quarterly, Organization Science, Journal of Biomedical Informatics*, and the *Journal of Medical Internet Research*, combines theories and methods from organizational theory and management to better understand how emerging technologies alter the way teams, communities, and organizations function.