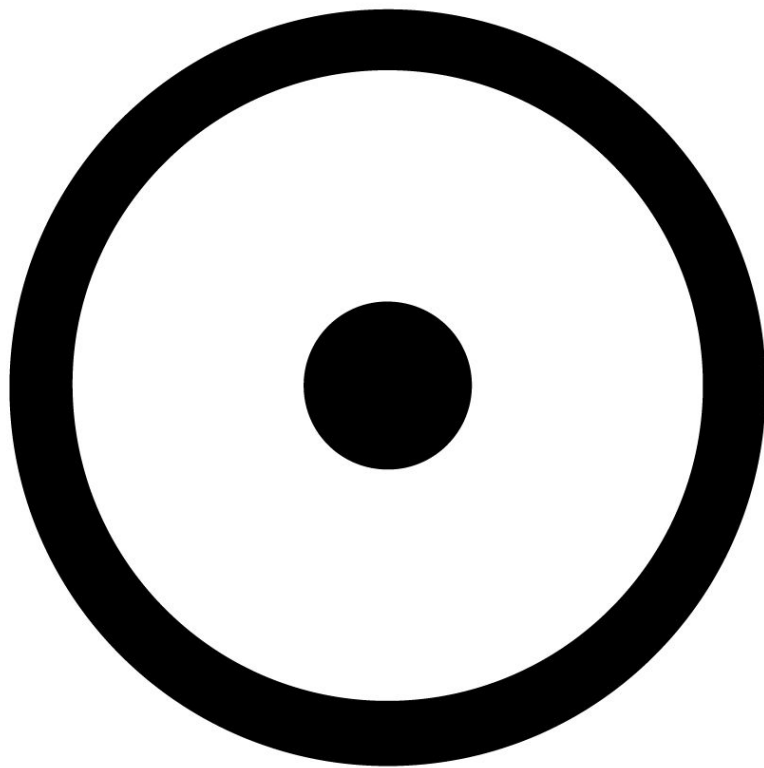


why do people edit?

- *Anna C Rader*



Analysis

Works cited

Bibliography

Contents

Introduction	5
The curious mind: Making the first edit	6
Gateway edits	6
Organized edits	6
Summary	7
Who edits: Personal qualities and intrinsic motivations	7
Contributor personalities	8
Altruism: The commitment to free information	9
Reciprocity: Seeking skills and knowledge	10
Summary	10
Learning the ropes: From newcomer to editor	11
Failing to survive: Reasons for early drop-out	12
Lack of education and support	13
<i>Technical illegibility</i>	13
<i>Reversion and deletion</i>	13
<i>Unconstructive criticism</i>	14
Lack of identification	14
<i>Hunched over keyboards</i>	15
<i>Weary of trolls</i>	16
Lack of community	16

<i>Feeling (un)welcome</i>	17
<i>Mixed messages</i>	17
Summary	17
Becoming a Wikipedian: Motivations for sustained editing	18
Driving content	19
Making editing a habit	20
Specializing	21
<i>Meta work</i>	22
Identifying as Wikipedians	23
<i>Individual or community?</i>	24
Leveraging networks	24
Cultivating reputations	25
<i>Edit counts</i>	26
<i>Featured articles</i>	26
<i>Barnstars</i>	27
Summary	27
Burnout and battles: Stressors on veteran contributors	27
Interpersonal conflict	28
Oligarchic politics	29
Summary	30
Conclusion	31
Caveats and limitations	31
Recommendations for improved editor experiences	33

Enhance communication	33
Support collaborative conversation	33
Encourage kindness	33
Connect users to friends and mentors	34
Support specialization	34
<i>Distinguish editor career pathways</i>	34
<i>Direct editors to favorite tasks</i>	35
Opportunities for future research	35
Recognize the diversity of editors	35
Analyze comparative and longitudinal data	36
Investigate readers and non-participants	36
Questions for further research	37
Notes	39
Works cited	40
Bibliography and further reading	42

Introduction

Wikipedia, the encyclopedia that anyone can edit, has been called “a shining example of what online collaboration can accomplish” [1] and a “landmark in building communal knowledge repositories” [2]. Almost two decades after its founding, and with millions of users and articles, it remains one of the most accessed websites in the world. How does it work? Through the efforts of volunteer editors who make an edit every second,^a writing, finessing, sourcing and cleaning the articles and media that constitute the leading “nonexpert open-collaboration-community organization” [3].

The work to maintain this huge mine of knowledge is not insignificant, yet people do it for free, in their own time and in their own homes. Why?

This paper provides an overview of the academic research on Wikipedia’s contributors, focusing on the reasons they make a first edit, then a second and perhaps even a hundredth. It is structured around three ‘inflection points’ that follow the three main phases of contribution:

- the moment of the first edit: how and why someone becomes a novice editor
- the honeymoon period: how they survive the first few months
- the arc of sustained participation: how they deepen their engagement.

This phasing is common throughout the academic literature, and is explicitly recommended by more recent studies as a way of distinguishing different types of editors and their motivations (see [4]). It is likewise used here as an analytical framework for assessing the factors that motivate people to contribute, though of course many editors follow their own pathway according to time and experience.

This paper is based on a review of the relevant and notable literature that directly speak to the themes at hand, based on the Annotated Bibliography that constituted the first phase of this research project.

The sections that follow highlight initial motivations to contribute and the drivers of continued engagement, as well as reasons for disengagement and departure of both novices and veterans. The paper synthesizes the key debates and insights, with frequent summaries along the way; before concluding with an evaluation of the principal findings, recommendations for future design interventions, and opportunities for further research.

The curious mind: Making the first edit

To understand why people edit Wikipedia, we must start at the beginning. What is their first encounter with the encyclopedia, and why do they engage Wikipedia at that point in space and time?

The academic literature offers a clear answer: individuals initiate Wikipedia editing from personal curiosity, accepting the inbuilt invitation to ‘edit this page’; or through organized opportunities like editathons.

Gateway edits

People engage with Wikipedia as readers for multiple reasons, from general fact-checking to conducting specific research. Many encounter typographical or factual errors or omissions as part of this process. At some point, the ‘cognitive dissonance’ of seeing an error and knowing that you know the solution [5], leads a reader to do something about it. This first edit – what we might call the ‘gateway’ edit – may be as simple as fixing the placement of a comma: indeed two-thirds of editors begin with typographical fixes [5].

But why *that* page at *that* time? Oftentimes, it seems that people notice a factual error or topic brevity because they have an interest or competence in the page they are reading. Contributors interviewed by Bryant, Forte and Bruckman [6] described the trigger to edit in very similar ways, speaking about the “slim” content, or “missing” and “wrong”

information on topics they ‘knew something about’. Robichaud, an archivist, said she found the “poorly written” Wikipedia page on Henri JM Nouwen “distressing” [7]. She began with a typical gateway edit – finding and adding an aid link – and then proceeded to undertake “months of regular editing to improve the page” [7].

“There it was, a big honkin’ typo staring at me. I was suddenly seized by a responsibility – obligation, really – to fix it. So I took the plunge and hit that edit button.” – [4]

How do they know what to do? The ‘edit this page’ button available on most pages offers an invitation to action. Since registration is not required, people can edit anonymously, “testing the waters” [4]. These low barriers to participation mean that another source of curiosity, the claim about Wikipedia’s “editability” [6] plastered across the website, can be easily tested.

Organized edits

A second pathway for the novice editor is to attend an organized editing session, learning about the technical skills needed for independent or group contributions. Editathons are planned events aimed at creating, improving or supplementing Wikipedia pages on a specific topic, often themed around an

anniversary or collection [7][8]. Galleries, libraries and museums (GLAM) have increasingly been initiators and hosts of these sessions, opening their resources and archives to develop content related to their materials [9].

Why do people attend an editathon in the first place? There seem to be many reasons, driven primarily by curiosity: about the theme, the archives or Wikipedia itself. Editathons offer an opportunity to open the black box of Wikipedia editing for people who seek technical support or have their own interests. In the few accounts reviewed here, participants are varied – from people affiliated with the host institution to members of the public – but they are often complete novices, benefiting from guidance from experienced editors or Wikipedians-in-Residence who can direct the editing activity and advise on guidelines and policies.

Summary

So, we know that some people stumble onto their first edit, encouraged by the ease of the interface to fix just one small thing. Others join an editathon at their workplace or local library, attracted by the theme or the promise of learning a new skill. These findings explain something of how people first engage with Wikipedia. However, to understand why they press the button or sign up for an event, we need to interrogate their individual and social motivations, derived from personal attitudes and beliefs.

Who edits: Personal qualities and intrinsic motivations

Curiosity is a useful explanation but why does Wikipedia work appeal in the first place? A prominent explanation in the academic literature is framed in terms of intrinsic motivations (see [2][10][11][12][13][14]). Unlike open software, open-content platforms do not offer opportunities for external rewards such as wealth, status or professional development [14][15]. Financial motivation has no impact on contribution for Wikipedia users [12] (indeed, Wikipedia contributors tend to find the thought of remuneration for their work abhorrent [16]). Rather, individuals are motivated by the activity of editing for its own sake, deriving pleasure from the work itself for personal and/or interpersonal reasons [14][17].

Wikipedia contributors certainly report feelings of self-fulfillment, enjoyment, and a “warm glow” of satisfaction [18]. However, despite the theoretical prominence of intrinsic motivations, the literature offers only a small focus on motives that may seem intuitive drivers of participation, such as enjoyment, pleasure and passion. Nov’s influential survey [19] is rare in that it explicitly codes survey responses in terms of fun, finding in fact that it is the highest ranked response. Crowston and Fagnot [4] similarly found that editors found contributing to be fun (though it was more important for editors with 10 or more edits). Fun has also been found to motivate

participation in other online open innovation communities [20].^b

Moreover, despite the consensus that intrinsic reasons are important, this type of analysis rather begs the question: how do people know they enjoy Wikipedia work if they have not done it before? In order to answer this, a segment of the literature focuses instead on personal values and personality types in a bid to understand why some people might be attracted to Wikipedia. This seems an intuitive step: surely there are particular types of people for whom editing is attractive, who read that ‘anyone’ can edit the encyclopedia, and think ‘that’s me’?

Contributor personalities

Several studies attempt to draw ‘portraits’ of Wikipedia users with varying success. We know that contributors are mostly male, characterized by a high level of education and have at least basic computer skills (Glott et al (2010 cited in [21]). Surveying Chinese Wikipedia administrators, Liang et al (2008 cited in [21]) found they shared the characteristics of having more personal time, weaker social ties and an ability to engage in long periods on the Internet. In a small, preliminary study, Amichai-Hamburger et al [22] argue that Wikipedia users are more likely to have personality characteristics of low agreeableness and high neuroticism, and that introverted rather than extroverted women are more likely to be Wikipedia contributors. They also conclude that Wikipedia users are more likely to locate their “real me” on the Internet than non-Wikipedia users [22]. West et al [5] found that Wikipedia editors are more “hungry

for information” than usual Web users: they “search more, read more news, play more games” and are immersed in popular culture, particularly music and movies.

Editathon participants and organizers have been similarly described in terms of the personal qualities that make them open to the type of knowledge production involved in Wikipedia. For instance, Littlejohn and Hood [8] suggest that people who have a commitment to interpretation and collaboration are good candidates for commons-based peer production. Proffitt [23] argues that librarians are natural Wikipedians because of their commitment to making knowledge publicly accessible, their research and investigation skills, and their familiarity with written and digital materials.

“I have a curiosity about the ‘truth’ and an instinct to double-check things. These are qualities that make me a good ‘Wikipedian’.” – [23]

These findings all offer useful insights into the types of people who may be curious enough to perform a gateway edit or attend an editathon. But they only give part of the picture. For a more rounded understanding, we need to consider two further

themes in the literature: ideological motivations and personal rewards.

Altruism: The commitment to free information

Classed variously as altruism or ideology, multiple surveys and interviews find that Wikipedia contributors highly rank statements about the importance of public knowledge, the commitment to open access knowledge, and the belief in doing something to help humanity [2][11][15][16][24][25]. For instance, Kuznetsov [24] interviewed 102 students at New York University about their willingness to contribute to Wikipedia. Of those who indicated interest in editing, around half said they would do so to “educate humanity/raise awareness”, with 17 percent motivated to “feel like I’m making a difference” and 15 percent “to give back to the Wikipedia community”.

“I think it’s a beautiful project.” – [25]

Oreg and Nov [15] conducted ‘portrait values questionnaires’ of Wikipedia users, finding high levels of agreement with statements related to benevolence and universalism (such as “I enjoy helping others if I can”). In other words, people who already had personal dispositions towards altruism may find the objective of voluntarily contributing to a global repository of knowledge appealing.

Despite this, altruism as an overriding motivation to edit has limited explanatory power for two key reasons. Firstly, even though people agree ideologically with the objectives of the encyclopedia, it does not follow that they are therefore driven to contribute. Respondents may want to impress researchers with their lofty goals, agreeing to the descriptive terminology presented to them rather than giving more mundane responses that explain their reasons to contribute [19]. “Just because we can assign a label to an activity does not mean that those behaviors are motivated by altruism” [26].

“People are relatively bad at identifying motivations for their own actions, and they are more likely to overstate the ‘Greater Good’ than the selfish reasons’.” – [27]

This is supported by survey analysis. Many respondents to Nov’s 2007 survey claimed they were motivated by ideology but this did not correlate with increased contribution – in other words, editors driven by ideological factors did not contribute more than those who give other explanations [19]. The 2009 UNU-Merit survey of Wikipedia contributors found that whilst slightly more people chose an altruistic statement as their motivation to contribute, curiosity had a higher mean priority [28]. In other words, whilst they may hold ideological principles about the importance of

ensuring free information and a public encyclopedia, this is not what drives them to first edit a specific Wikipedia article [5].^c

Reciprocity: Seeking skills and knowledge

Secondly, whilst altruism is regularly ranked highest as a motivation, this does not exclude other explanations. We see this in the ways that altruism is modified in the literature in such forms as “reciprocal altruism” [24], “selfish altruism” [1] or “impure altruism” [18]. These terms try to capture the fact that people also seek personal benefits from participation even if it is not immediately rewarded. The most common of these is developing competence in technical skills and knowledge production processes [10]. Baytiyeh and Pfaffman argue that Wikipedians are motivated most by their desire to learn [11]. Several studies frame this in terms of ‘reciprocity’: in return for giving to the community, users gain access to useful information and expertise - a strong motivator in other technical communities (Wasko and Faraj (2000, cited in [20]; see also [24]. Wikipedia users also value making a contribution that is then matched by others, since this in turn increases their own knowledge and experience [16] [24].

However, despite the potential of this avenue for understanding editor motivations, task competence and knowledge acquisition are not strongly developed themes in the literature. Moreover, this avenue only takes us so far in understanding the initial driver to edit, since skills refinement is a benefit that requires an initial outlay of time and investment (not least in learning the Wikipedia

mark-up language), rather than being an immediate dividend of a contribution. This suggests that reciprocity is just one driver of Wikipedia contribution, deserving of further investigation, rather than the key to unlocking the motivations to edit.

Summary

Despite the diversity of contributors, and the time, place and context in which they first edit, the academic literature makes several key claims about what motivates people to edit Wikipedia. Contributors are comfortable using the internet, enjoy undertaking online work (and have the time to do it), have ideological principles based in benevolence or universalism, a desire to learn new skills, and derive enjoyment from the activity itself. However, as the discussion in the preceding section shows, there are considerable qualifications to these findings, not least in terms of generalizability and comparison (see [Caveats and limitations](#)). Further research that interrogates the first edit that people make may help us understand more about why they choose that time and place to edit, why they make that particular contribution, what weight they ascribe to different motivations (and in what combinations they arise), and how durable these motivations are. These questions are important for editor recruitment and retention alike, since they have a bearing on whether people abandon Wikipedia after the first try, return for a second edit or stay for a hundredth.

Learning the ropes: From newcomer to editor

The trajectory of contributor from novice to frequent editor is a key debate in the literature, framed around a form of the ‘nature-nurture’ argument [29]. At its most basic, researchers question whether behavioral patterns of contribution are set from the first activity of users, or whether participation in the Wikipedia community is an adaptable process over time.

On the nature side, Panicera, Halfaker and Terveen [30] argue that the number of edits made in the first two days is a strong predictor that a new editor will become what they term a “power editor” (someone who has made over 250 edits in their lifetime). In other words, “Wikipedians are born, not made” [30]: they do not become committed editors through time and experience, but because they set out to do so.

The nurture side is led by Bryant, Forte and Bruckman, who propose that contributions evolve over time via a process of ‘legitimate peripheral participation’ [6]. Developed to describe how novices in industries like tailoring become old-timers, Wikipedia newcomers similarly develop the necessary confidence, skills and vocabulary by “lurking” on the edges of editing activity before “getting into the habit” of regular contributions [6]. Rafaeli and Ariel [2] and Crowston and Fagnot [4] also argue that repeated interactions and task iteration are responsible for the transformation of

novice and infrequent editors to sustained contributors.

It is possible that both ideas are at work, with long-time editors displaying persistence from the beginning of their Wikipedia ‘career’, growing in confidence with time and experience [29]. Further research can illuminate the complex way initial motivations endure and shift.

Certainly, though, almost all editors need to make a few edits in order to begin to acquire the skills and knowledge to deepen their commitment. This process of acculturation, in which contributors accept the rules of the organization and develop a sense of belonging [31], is a crucial part of Wikipedia’s ‘reader-to-leader’ process.

“[A]fter a few hours of contributing, editors often realize Wikipedia is a community with goals, rules, and different tasks to perform. Then, new editors often establish a userpage so that other peers can recognize a user’s skills and degree of expertise.” – [32]

Studies that interrogate this process in other online communities find that people are more likely to “venture in” if the interface enables contributors to gain visibility for their work, which in turn permits

the emergence of feelings of connectedness [33]. Ling et al [34] find that people are more likely to contribute to online communities if:

- They believe their effort is important to the group's performance
- They believe their contributions to the group are identifiable
- They like the group they are working with.

Analyzing Persian Wikipedia, Asadi, Ghafghazi and Jamali [12] found that users, initially prompted by curiosity and recommendations to join, go on to develop motivations based on knowledge sharing and increasing familiarity with the structure and culture of Wikipedia. As in Preece and Shneiderman's model [33], continuing participation is explained by reputation seeking and personal satisfaction (as well as – in this case – the desire to enrich Persian web content) [12].

These factors are significant for Wikipedia contributors who stay the course through the first edit towards deeper commitment (discussed in detail in *Becoming a Wikipedian*). These are editors who have overcome the costs and hurdles of the freshman stage of editing. Many, however, do not, and we now discuss the top three 'demotivating' factors that lead to early drop-out.

Failing to survive: Reasons for early drop-out

We have seen how difficult it is to draw out the variety and complexity of motivations to begin editing Wikipedia. The reality is that most people who edit Wikipedia do so only once [4] [31],^d and over 60 percent of registered users never edit again after their first 24 hours [30]. Perhaps they are satisfied with their first and only edit, having gone online with the intention of making only one alteration? Perhaps not.

Whilst all editors experience a tailing-off of activity [30] after the initial "honeymoon period" [29][18], not all editors "survive" their novicehood, failing to make even infrequent edits within a 6-month period [35]. People may not be motivated to move forward because of various reasons, many unrelated to their Wikipedia work; or they may want to but be impeded by sociotechnical hurdles. It is therefore critical to understand the experience of editors in the newcomer phase, in order to develop interventions to support retention. What are the reasons for non-survival, whether pause or departure? Do the initial motivations evaporate, or are they overwritten by powerful demotivators?

Drawing on the volunteering literature, Konieczny [36] notes that there are many explanations for dropping out, but that typically volunteers depart at the beginning of their participation, after realizing it does not have the expected appeal; or after much longer in an organization, when they experience

“burnout” from anxiety, cynicism and stress (see [Burnout and battles: Stressors on veteran contributors](#)). The literature reviewed for this paper focuses on three themes that affect retention: lack of technical know-how and support to improve; not identifying as a ‘Wikipedian’; and not feeling included in the community. Let us review each of these in turn.

Lack of education and support

As we have seen above, new editors typically make their first contribution in terms of a typographical correction or factual clarification. However, even people supported at an editathon can find their first edit “nerve-wracking” [8] because of Wikipedia’s status as a public, high-profile and even “venerable” institution [9]. Contributors who seek to make more than a one-off edit face a steep learning curve.

Technical illegibility

First, they face technical challenges in learning how to make edits, apply templates and follow policies. Learning the mark-up syntax takes time, which newcomers find difficult [37]. Though there have been efforts to address this – such as the introduction of the visual editor – other aspects of the Wikipedia system pose impediments to novices. This includes segments of the population currently underrepresented in the Wikipedia community such as older people. Nielak et al [38] interviewed new users of Polish Wikipedia aged 62-87 years old. They reportedly found Wikipedia’s divergence from familiar word-processing programs confusing, with codes and templates difficult to interpret and apply,

deepening feelings of unfamiliarity. Inconsistencies in the language of call-to-action buttons made it difficult to apply learning in one editing task to another. Of 10 participants, only three returned to the Wikipedia editor by themselves; and all the users struggled with some aspects of the editing process, undermining their self-confidence. [38]

Reversion and deletion

Second, new editors face the problem of the so-called “piranha effect” [39] in which the “Wikipedia community [is] immediately on” newly changed articles [8]. Editors who closely observe watchlists are alerted to even small changes, and act quickly to shut down vandalism, typically through the mechanisms of reversion and swift deletion. These actions, whilst designed to safeguard the encyclopedia, decrease newcomer confidence by working as a form of “sociotechnical gatekeeping” [35]. Although a third of new editors contribute a new article immediately after registering, many newcomers’ articles are tagged for speedy deletion (often within 30 minutes of creation) or removed after a period of review (87 percent within 30 days. [40].

Reversion has been shown to be strongly demotivating, particularly for new editors [14][41]. In the weeks following a revert, users edit less and reduce their communication on talk pages, and are at risk of leaving Wikipedia altogether [41]. Halfaker et al [35] attribute high reversion rates to newcomers’ lack of understanding of policy and technical issues, together with increasing use of rejection via algorithmic tools. They considered

alternative explanations for the decline in new editors, including the increasing completion rate, failed socialization systems (see [Feeling \(un\)welcome](#)), and encyclopedic “right-sizing”, but argue that the tools designed to enhance the quality of the encyclopedia have in fact served to demotivate new editors, particularly those they term “desirable newcomers” [35]. The Articles for Creation process has also been identified as alienating newcomers, with rejection and poor feedback affecting productivity [40]. Even articles that do receive feedback may not be developed because newcomers cannot find their drafts, do not understand how to rectify complaints about notability, sourcing or NPOV, or have technical problems [40].

Reversion or deletion is not always the problem, however. Zhang and Zhu [14] found that adding new content to an article decreases the creator’s incentive more than deletion. They suggest that this is because “the creator may feel others are more knowledgeable and her contribution may not matter to the success of Wikipedia” [14]. Newcomers, particularly those who edit as individuals, are more vulnerable to such confidence hits because they lack experience of past collaboration or approved edits to bolster them in the face of failure.

Unconstructive criticism

Third, newcomers face the problem of lack of emotional support to deal with Wikipedia culture, which, whilst foundationally collaborative, is also conflictual (see [Interpersonal conflict](#)). Some researchers argue that the experience of negative feedback is part of the learning process – for

instance, Halfaker, Kittur and Riedl [41] found that for some editors, reversion improved the quality of the resulting articles; whilst both Robichaud [7] and Proffitt [23] reflect that they only knew about key policies once they made the mistake of not following them, an insight they ultimately welcomed. Whilst editors who have amassed experience and skills may find that criticism and conflict are productive for writing [4], newcomers may feel demotivated to pursue editing in the absence of clear or kind feedback, or personalized structures for support. Research that has examined this, such as Choi et al (2010, cited in [29]), finds that newcomers are less likely to reduce or abandon their contributions when they receive welcome messages, assistance and constructive criticism, a key recommendation for Wikipedia (see [Recommendations for improved editor experiences](#)).

Lack of identification

Wikipedia’s founder, Jimmy Wales, reportedly once said that the typical user is “26-year-old geeky male” [36]. Registered users of English Wikipedia are overwhelmingly male, white and in their late 20s. Women, on the other hand, contribute less than 10 percent of edits, are more likely to be reverted as a newcomer, and have a lower survival rate [35].

Encouraging a broad range of people to undertake their first edit is important, as is supporting new contributors to progress to more frequent participation. Addressing stereotypes about who is a Wikipedian is critical to this, particularly for retention: if people believe they do not fit in, they

will not be motivated to remain. Antin [1] frames the problem clearly:

By contributing an individual may perceive she becomes a part of the group labeled ‘contributors’ and therefore associated with its characteristics. ... [she asks herself] “Is this a group I want to be a part of, and are these my kind of people?”

Hunched over keyboards

Two notable themes emerge in the literature on the perceptions of Wikipedian in-group identity. Firstly, there appears to be a tendency to regard Wikipedia as the domain of geeks and intellectuals, which makes episodic and novice editors question their own ability to make contributions of merit. Antin [1] asked readers and infrequent contributors to describe Wikipedia’s contributors, finding that they fell into three recurring stereotypes: regular folks, intellectuals and solitary techno-geeks. This echoes an assumption found in Nielak et al [38] that, although ‘anyone can be an editor’, and there are people who tinker on the margins of the topics they are passionate about, the main articles in Wikipedia are written and checked by people authoritative in the subject matter: “historians”[38], “old men with tweed jackets with circles on their elbows” [1], “PhD students or somebody who’s just done a bunch of research” [1]. In comparison, novice editors feel “unqualified” [38], a belief held disproportionately by women: Collier and Bear [42] found that women are almost twice as likely to state that they “don’t have enough knowledge or expertise” to contribute. These beliefs background people’s encounters with administrators and experienced editors during their

early survival weeks, and may reinforce feelings of not being the ‘right’ sort of contributor when faced with reversion or swift deletions (see [Reversion and deletion](#)).

“Is this a group I want to be a part of, and are these my kind of people?” – [32]

Antin also addresses a third “othering” categorization: the image of contributors as “technologically adept, unkempt, unhealthily obsessive, and absorbed in online life” [1]. This is what contributor Lih calls the perception of Wikipedia editors as “hunched over keyboards” [43]. Antin’s respondents conjured what he describes as “unflattering” and “distasteful” imagery: “people who have no life”, “locked up in their room”, “sitting on a chair in their boxer shorts with a catheter and a feeding tube” [1]. Whilst based on anecdotal evidence, the principal analytical point is important: the invocation of negative or foreign stereotypes serves to create assumptions about who really fits into Wikipedia – if you don’t have a PhD or a basement, are you really a contributor? And do you want to be? These problems are exacerbated by the reversion culture described above, and the social stratification of Wikipedia which places administrators and “power editors” in positions of outsize influence (discussed in Oligarchic politics).

Weary of trolls

The issue of stereotyping feeds into a second theme in the literature, in which registered users are alienated by an editorial culture they consider to be aggressive and conflictual. Collier and Bear [42] argue that women in particular are repelled by editorial discussions characterized by conflict and competition, with the fear of “being ‘criticized’, ‘yelled at’, and ‘getting into trouble’” leading female contributors to avoid becoming more active or departing altogether. Although Reagle (2011, cited in [42]) notes that there may be only a few high-conflict members, the work of trolls and misogynists can have a disproportionate effect on the tone of Wikipedia interactions. Indeed, half of Littlejohn and Hood’s female participants expressed anxiety about trolling [8]. Although none of the literature reviewed here directly addresses this issue, it seems likely that early experiences of criticism or conflict may contribute to an overall sense of Wikipedia not being a place for ‘a person like me’, reducing chances for survival.

Lack of community

Being part of the Wikipedia community is considered a key part of the appeal for experienced editors (see [Identifying as Wikipedians](#)). Novice and infrequent editors, however, typically do not experience group identification. Rather, they experience uncivil behavior, find it difficult to communicate and form networks, and are barred from Wikipedia’s inner circles.

Wikipedia is remarkable in that it has explicit policy prescriptions on civility, with users encouraged to

“assume good faith” and “not bite the newcomers” [44]. However, Morgan and Halfaker [37] argue that there has been steady increase in hostility towards good-faith newcomers. Personal accounts of becoming a new editor often include anecdotes of unwelcoming behavior [23], negative feedback [14] or fear of trolling [7]. Despite the overarching philosophy of open collaboration and informal, *ad hoc* decision-making, English Wikipedia has become rife with regulation and rules that deter newcomers and increases the power of old-timers [3].

Moreover, since neither Wikipedia policy nor culture is designed for social networking or socializing [44], it is difficult for newcomers to feel part of the community: whilst they might be a Wikipedia user, they may not feel like a Wikipedian (see [Identifying as Wikipedians](#)). In part this seems to be a matter of mindset – Bryant, Forte and Bruckman [6] and Panicera, Halfaker and Terveen [30] both argue that being a Wikipedian or “power editor” is as much about self-identification with the Wikipedia project than being formally recognized as such. However, it is also the case that novices find it more difficult to foster interpersonal relationships, an element that has been found in other online communities to be crucial to newcomers’ participation and retention [45].

Without effective bond-based attachments, newcomers do not enjoy affective benefits that motivate some members. Moreover, without significant others within the Wikipedia community, newcomers find it difficult to ‘learn the ropes’ of community rules, a problem that the academic

literature ascribes to problems of onboarding and inter-user communication.

Feeling (un)welcome

Wikipedia's community is based on collaboration, but it is difficult for new editors to acquire the skills and contacts with which to seek help and improve their editing. Many new editors will have received generic welcome messages upon registering, but these have been shown to be less effective at encouraging sustained contribution than personalized socialization tactics (Choi et al 2010, cited in [35]).

Wikipedia has trialed several interventions to support newcomers, amongst them the Teahouse and the 'Adopt-a-User' program. Morgan and Halfaker [37] found that newcomers who received Teahouse invitations were more likely to remain active weeks if not months later, an impact they ascribe to the personalization of the invitation, the ability to "lurk", and the accessible Q&A format. However, the authors note that the requirement that editors have at least five edits and more than 24 hours of registration, whilst protecting against malicious or disruptive behavior, may mean that good-faith newcomers are denied positive socialization in the crucial early period (see also [30]).

Musicant et al [44] came to a similar conclusion about the English and German Wikipedias' mentorship program: whilst some newcomers were able to be matched with mentors, sociotechnical challenges within Wikipedia's design and culture

makes mentoring difficult, including the difficulty of – and norms against – conducting one-to-one communication about issues not directly related to editing activity.

Mixed messages

Relatedly, research suggests that newcomers struggle to learn the landscape of communication on Wikipedia. Musicant et al [44] argue that the nature of the wiki structure makes it difficult to know where communication should take place. Should it be on the talk page of one user or cross-posted across both? Should it take place on public talk pages where it can be difficult to follow conversations without automatic threading and indenting? Unless users check a range of pages frequently, they might miss comments, offers for collaboration, feedback or other messages since Wikipedia does not push notifications [44]. Moreover, what is the correct form of communication? Wikipedia users are encouraged to keep conversation limited to topics relevant to the encyclopedia: "the focus of user pages should not be social networking, or amusement, but rather providing a foundation for effective collaboration" states one policy page [44]. Since Wikipedia is first and foremost a digital community, these problems of communication inhibit the inclusion and investment of peripheral editors.

Summary

Taken together, these challenges mean that whilst new and episodic participants may be keen editors, they face a number of hurdles to developing the

collaborative interactions, communal networks and improved skills that signify more experienced editors and, significantly, those who call themselves Wikipedians.

We can learn more about how to address these concerns when there is further research about trigger events that lead to early departure. Currently, the academic literature does not scrutinize early drop-out, in part because of the challenges of respondent recruitment (see [Caveats and limitations](#)). But there is much to learn about which factor(s) are the most demotivating, as well as the subsequent pathway of departing editors (for instance, do they return to being a reader, or leave Wikipedia altogether? Do they re-register at a later stage? Do they edit anonymously, or even vandalize?). These questions offer an agenda for rewarding future research.

Becoming a Wikipedian: Motivations for sustained editing

We have reviewed the entry-points for initial editing, finding that people with certain personality traits are more likely to satisfy their curiosity about Wikipedia's 'editability' with a gateway or editathon contribution. Those who 'survive' the first few months are drawn more deeply into the Wikipedia community, developing a user identity and extending their learning about the norms and rules that govern the space.

Within the large amorphous group of users who make regular edits to Wikipedia lies a group of core contributors: those who are termed "addicted" [12] or "passionate" [33]. Like other online communities, Wikipedia's user population exhibits a 'power law', in which there is a large volume of lurkers or free-riders, a smaller volume of semi-active contributors, and a tiny minority of very active users [2]. Not only is the small cohort of committed editors the ones who do the most work to maintain the encyclopedia, but they are correspondingly rewarded with greater editorial privileges and credibility to assert and protect content creation.

What does it take to become more than an episodic editor, joining the ranks of Wikipedia's veteran and 'super' contributors? Again, this an area of debate. Panciera, Halfaker and Terveen [30] propose that intrinsic factors that mattered early on in a Wikipedian's career incentivize consistent contributions, whilst Crowston and Fagnot [4] argue that long-term editors are driven not by "higher levels" of initiating motivations, but by a different set of benefits as a result of their tenure and the new kinds of roles and responsibilities these furnish. Similarly, Rafaeli and Ariel [2] argue that contributing more frequently creates new cognitive, affective and social benefits, the sustenance of which creates a feedback loop that motivates continued editing.

Unraveling these benefits reveals the motivations for continued and deeper involvement in the Wikipedia community. Synthesizing the relevant research gives us six key elements of sustained contribution, which may act as drivers singly or in

different combinations depending on context, personality and seniority. In sum, frequent editors:

- drive content
- make editing a habit
- specialize
- identify as Wikipedians
- leverage networks
- cultivate reputations.

The next section reviews these in turn.

Driving content

Both novice and experienced contributors are typically motivated to undertake editing on a topic about which they have a special interest [5]. These hobby topics are an important way that contributors maintain focus and develop their knowledge.

This grows as people gain experience and expertise in the encyclopedia. Even though editors seek to uphold Wikipedia’s integral policy of ‘neutral point of view’ (NPOV), they have idiosyncratic interests and perspectives, encoded in patterns in editing activity. Miquel-Ribé [46] argues that experienced editors are more likely to choose their work according to these interests, rather than what is popular or novel. In this way, frequent editors may develop niches at the ‘crossroads’ of fulfilling readers’ informational needs whilst working on content that they feel most congruent with [32].

“I’ve got a thing about rivers in Iowa” – [1]

Editors’ interests may of course change. What initially brought them to Wikipedia, “rivers” for instance [1], might be replaced by topics that emerge from their experience of editing or the collaborative networks they develop. For instance, motivated at first by a love of history, Wikipedia legend Stephen Pruitt describes the “high” of conducting a range of research and editorial work that feeds his “agglomerative personality” [47]. It is also important to recognize that feelings of expertise may be difficult to cultivate: Collier and Bear found that 43 percent of female contributors are more likely to believe that they have insufficient knowledge or expertise than male editors [42].

Creating content does not necessarily require subject expertise however. Bryant, Forte and Bruckman [6] argue that people shift from content-based editing to policy-based editing as they gain experience and relative seniority. Crowston and Fagnot [4] agree that sustained contributors acquire new types of knowledge: they are less likely to claim self-reported domain expertise, drawing instead on their knowledge of the Wikipedia community and how to make an effective contribution. However, this does not mean they abandon their original interests. Whilst the proportion of edits by senior contributors has declined over time, it is not because they undertake less activity in the main namespace in favor of other

parts of the encyclopedia [30][48]. Senior editors do more work than newcomers in terms of adding content, and lower levels of overall activity could be explained instead by the rapid growth in the number of edits made by users with fewer than 100 edits [48] or the increasing boldness or breadth of edits by experienced editors [30].

This boldness includes creating pages and taking responsibility for shepherding articles through the content creation and editing process to the point of recognition as a featured article (see [Featured articles](#)). These “coolfarmers” [49] may also contribute to pages that become featured articles or gain community accolades (see [Cultivating reputations](#)).

Veteran editors not only take on a breadth of editing work, therefore; they also sustain their activity on a single article as part of a “small world structure” of active editors [49] that persist in editing a topic long after it hits the news or generates controversy.

Making editing a habit

Active Wikipedia editors are reported to work on Wikipedia on a near-daily basis [6][25]. Administrators interviewed by Baytiyeh and Pfaffman [11] spent 1–10 hours a week on Wikipedia on average, with at least 2 hours a week participating in discussions and finding information, and 2–10 hours editing articles. A 2016 study analyzed the number of edits per 30-minute window across ten years of data to assess regular patterns in editing activity, finding clear circadian patterns constrained only by biology [50].^c Editors at the administrator

level had “power peaks” at different times of day, with editing activity intensifying during holidays [50].

Just as some people spend time on other forms of new media or social networking sites, logging in to Wikipedia is one of the rituals that committed editors undertake as part of their daily routine. (Indeed, research suggests that Wikipedia editors with higher levels of activity are less likely to use Facebook [5].) Many editors, particularly administrators, begin with the ‘watchlist’ using it to direct their tasks for that session [35][41]. For instance, if they discover vandalism on one of the pages they follow, they may spend more time on the site than if there have been few edits in their pages of interest (see [2][3][25][32]). The news cycle is also an important trigger of activity [49].

“Over the last six years, there was hardly a day when I did not log in to Wikipedia and make edits.” – [3]

For committed editors, the site is intertwined with their offline activities, with the website often “active in the background” throughout the day [25]. For instance, an experienced contributor interviewed by Sundin described how Wikipedia is a constant touchstone: taking a break from his typical duties of correcting links, rolling back vandalism and adding content, the user watched a film. Finding that the associated article was incomplete, he then spent

time extending it. All told, his Wikipedia work that day spanned from morning to midnight [25].

“I never do anything in Wikipedia because I have to. I do it because I feel like it.” – [25]

Although more research is needed into contributors’ daily routines, we can begin to see how committed editors interact with Wikipedia in multiple ways throughout the day – as readers, creators and caretakers – depending on the type of work they set themselves. This work is habitual and self-directed. As Kuznetsov [24] quips, “Wikipedians are never ‘fired’, demoted or even reprimanded for a lack of work”. She argues that people enjoy the type and format of the work, which gives a sense of accomplishment “while working with exceptional freedom and ease” [24].

Specializing

As editors become more experienced in the application of Wikipedia’s technical and policy norms, they may seek to take on more specialized tasks that sustain the encyclopedia. Kriplean et al [51] identified 42 types of work valued by the Wikipedia community. These include watchdog roles – often called vandal-hunting – which includes identifying vandalism, blocking errant users and protecting articles if their privileges extend to this (see [6]), as

well as more general “janitorial” tasks, such as ensuring the verifiability of sources, the style of references and the appropriateness of external links [25]. Baytiyeh and Pfaffman [11] found that vandal fighting and cleaning were favorite activities of administrator-level editors.

Whilst many people remain ‘generalists’ [26], frequent contributions to Wikipedia can reveal or sharpen people’s abilities for particular kinds of editing work. A strong theme in the academic literature is the production of editor ‘typologies’. Welsler et al [26], for instance, posit four role types:

- ‘Substantive experts’, who invest time in fact checking and article talk
- ‘Technical editors’, who make numerous small changes, specializing in a particular type of problem such as grammar or source links
- ‘Social networkers’, who invest in the social interaction and community building
- ‘Vandal fighters’, who correct vandalized pages and post warnings.

Huvila (2010, cited in [21]) offers further dimensions of editorial work:

- ‘Investigators’, who initiate and substantially contribute to articles related to personal interest or expertise
- ‘Surfers’, who contribute easily findable sources from web searches
- ‘Worldly-wise’ editors, who contribute to topics in their own sphere of experience using serendipitous information discovery
- ‘Scholars’, who contribute within their academic or professional level of expertise

→ ‘General’ editors, who focus on administrative tasks, corrections and translations.

Added to this are other role terms such as ‘boundary spanners’, who integrate knowledge across different backgrounds (Harrer et al 2009 and Halatchliyski et al 2010, cited in [21]) and ‘rollbackers’ who undertake reversions [3]. There are also attempts to frame social roles according to the attitudes that editors bring to the encyclopedia. For instance, Iba et al [49] distinguish ‘zealots’ (who provoke heated discussions or controversies) and ‘mediators’ (who reconcile different viewpoints).

The distribution of ‘editor types’ seems to be similar within newcomers and ‘dedicated’ editors [26], suggesting that role differentiation happens very early on [8]. Interviewing new editors trained at an editathon, Littlejohn and Hood [8] found that some people were drawn to the production of new artefacts, whilst others sought to source and interpret primary data. Participants responded differently to the variety of tasks on offer, pursuing either content generation connected to the theme or the technical production process, depending on which “sparked” their excitement and interest [8]. Like Panciera, Halfaker and Terveen’s ‘nature’ argument [30], Littlejohn and Hood [8] argue that these different activities are associated with values and beliefs about editing responsibilities, linked to both pre-existing expectations and experiences gathered during early editing. In contrast, Welser et al [26] instead follow Bryant, Forte and Bruckman [6], arguing that newer users engage in ‘legitimate peripheral participation’ to observe the variety of roles and responsibilities on offer, choosing which

ones fit their own interests and skills. Sundin [25] similarly finds that informants often begin with article writing before progressing to meta activities, including fixing links and sourcing references.

These roles may of course change over time, and are not mutually exclusive: people may have several specialisms. Miquel-Ribé and Laniado [32] suggest that people perform certain tasks related to a range of identities, personal beliefs and values: correcting typography as a ‘Wikipedian’, and then editing pages on cultural content as a state national, for instance. This more attuned analysis is not, however, captured in the academic research: Welser et al [26], for instance, could not distinguish the “noise” of multiple social roles in their analysis, but acknowledge that it is “an important phenomenon worth studying”.

Meta work

Whilst the majority of typological roles are informally assumed, Wikipedia also contains a few clearly defined and formal positions, including administrators, stewards and bureaucrats.^f These roles require election, and are accompanied by editorial privileges within the wiki framework that enable post-holders to undertake additional ‘meta’ tasks, such as arbitration. Undertaking meta activities that require “clout” [31], such as liaising between communities or establishing joint projects, is a way of distinguishing long-standing members. For some contributors, these meta activities take up an increasing amount of time, drawing them away from writing and editing articles, an issue which can prove demotivating in the long run (discussed in

[Burnout and battles: Stressors on veteran contributors](#)).

Identifying as Wikipedians

The role of Wikipedia editor is interesting because it remains voluntary regardless of how high one ascends in the hierarchy of editors. Moreover, as described in [Cultivating reputations](#), credibility is assessed within the boundaries of the encyclopedia: real-world credentials have no currency [3]. Nonetheless, identity matters. Whilst personal interests and cultural identities do have an impact on editing activity (see [32][52]), another identity is also significant in the experience of “becoming” [8] a Wikipedia editor: that of a ‘Wikipedian’.

Wikipedian is an identity term deployed by contributors and the researchers who study them. As with the diverse terminology on contributors, there is no clear criterion within the academic literature about when this term applies. On English Wikipedia at least, it is used to simply differentiate between readers and editors: “Anyone – including you – can become a Wikipedian by boldly making changes when they find something that can be improved”.⁸

In the academic literature, however, Wikipedian is used as a mark of distinction. Bryant, Forte and Bruckman [6] persuasively argue that editors become Wikipedians when the encyclopedia “as a whole” becomes more important than a single article, and they see themselves as “caretakers” of sections of the project. Crowston and Fagnot [4] agree that identification with the project grows as

people move from novice to meta phases of contribution (see also [24][25]).

Articulating a sense of investment in the Wikipedia “movement” is characteristic of people who describe themselves as Wikipedians. For instance, Proffitt [23], a self-described Wikipedian, writes:

It is very inspiring to be in a group of people who are committed to a common purpose and who have given themselves not only permission but a mandate to change the world.

These ideological concerns are part of the bundle of altruistic motivations (discussed in [Altruism: The commitment to free information](#)) that may be held strongly by long-time editors who become stakeholders in the success of the entire project, having devoted their time and energy to building content and enforcing policy.

However, despite the apparent importance of these motivations in anecdotal accounts, the empirical research continues to emphasize intrinsic motivations, such as personal satisfaction, as an explanation for participation (see [Who edits: Personal qualities and intrinsic motivations](#)). This may be because altruism is a rhetorical commitment rather than a call to action. Serving the broader Wikipedia community may not actually incentivize individuals because, as Miquel-Ribé and Laniado [32], put it, the goal of supporting “all human knowledge” is too vague. Rather, personal efficacy and benefits are more important to contributors than beliefs in the integrity and import of the Wikipedia project [6][10].

Individual or community?

This poses an interesting conundrum. Whilst anecdotal evidence emphasizes the importance of the Wikipedian identity and assumed bonds to others that share this identity, as well as attachment to the broader Wikipedia community, we do not find evidence in the academic literature that Wikipedian-ness has a collective pull on members over and above the individual benefits they gain as users. For instance, Crowston and Fagnot [4] argue that the social benefits of being part of the Wikipedia community arise from specific interactions, rather than the psychological sense of belonging that comes from group identification. This may be explained in several ways: that their enjoyment in contributing comes from their individual work rather than sharing knowledge with (imagined) others, as Yang and Lai [17] argue; or because Wikipedians frequently take on policing roles, which is associated with less prosociality towards other members [22] (see also [16]).

These findings contrast with other theoretical and empirical research that finds that identity-based attachment is a crucial ingredient of participation and retention in online communities [45]. More research is therefore recommended to uncover the mechanics, scope and significance of ‘Wikipedian-ness’ as a group identity for contributors. Differentiating amongst users according to demographic and geographic characteristics, and duration and volume of contributions, will generate useful insights about the type of interventions that can foster group-based

identification to support commitment and retention.

Leveraging networks

Collaboration and social interdependence are crucial to getting work done and facilitating learning [11]. Whilst more research is needed to understand group-based identities and attachment within Wikipedia, there is agreement in the literature that interpersonal bonds on a smaller scale are important for participation.

A number of studies reveal that editors experience their most effective relations within much smaller networks than the broader Wikipedia community. Kuznetsov [24] argues that most users interact with the same set of individuals over months and years, developing synergistic relations within “niche subspheres and small communities”.

According to Xu, Liu and Qi [52], these networks exhibit connectionist characteristics: the more that editors communicate and collaborate, the more the network is characterized by reinforcing behaviors and identities. In other words, different types of editors form different kinds of networks. Welser et al [26] found that contributors who focus on expertise and discussion form denser community structures with reciprocal ties, similar to the “small world effect” of tight groups of editors found by Wang et al (2009, cited in [21]; see also [49]).

These collaborative webs are important for effective editorial work as well as intrinsic incentives such as enjoyment. For instance, an examination of the 2005 block of Chinese Wikipedia on Mainland China found that there was a significant reduction in the contributions of non-blocked users who were still free to use Wikipedia, particularly amongst users who seemed particularly social, as measured by talk page activity and connections with blocked users [18]. The authors attribute the decline in contributions to the reduction in social benefits that comes from shrinking group size: in other words, fewer editors meant fewer opportunities for communication, collaboration and improved editorial outcomes [18].

Based on network analysis of English Wikipedia, Nemoto, Gloor and Laubacher [53] argue that editorial work is more successful when collaboration networks already exist: the more cohesive and centralized these are, the faster the pathway to promotion. Whilst noting that the actual work of writing, citing and editing is individual and asynchronous, Wikipedia editors must go beyond cooperation to collaborate with other editors to verify statements and sources [8]. These networks may last beyond a single article, as editors build linkages that enable collaboration on multiple articles [53].

Cultivating reputations

The importance of creating and developing an identity within the community is not a matter of narcissism, but of gaining credibility and trust. The value of a Wikipedian lies in their previous

edits and areas of interest, as well as the competences demonstrated in different kinds of tasks. [32]

Although egalitarian in principle, reputation matters on Wikipedia.^h Non-registered users or those with “low reputation” are at a disadvantage, occupying the lowest position in editing hierarchies, with their contributions likely to be reverted or changed [54]. Registering is necessary for credibility and status [54], with anonymous contributions regarded as inherently suspect [31], despite the fact that anonymous edits have been found to be of high quality [53].

Contrary to typical online volunteerism (including F/LOSS), Wikipedians do not use their participation to enhance their professional reputations. Rather, Wikipedia is more like online gaming, individual content aggregators and social networks because recognition is built and maintained within the community [3]. Senior Wikipedia editors craft their online profile and reputation with great care [49], showcasing their experience and credentials in their interactions on talk pages, user pages and shared forums such as the Village Pump. Bryant, Forte and Bruckman [6] argue that the content of the user page is a clear marker of a Wikipedian, where they can provide biographical information, link to articles they have worked on, list their interests, and display their accolades (see also [24][51]).

Articles, of course, are not formally authored, but Wikipedia editors are able to amass credit for their work in quantitative and qualitative ways.

Edit counts

First and most obviously, Wikipedia editors are ranked on Wikipedia by several metrics, including number of edits and article count. These lists are updated frequently, although the most prolific editors have significant leads across important measures: Steven Pruitt (user name Ser Amantio di Nicolao) has made over 3 million edits and created over 35,000 articles [55]. For most users, however, such measures of contribution are out of reach, and may not have a motivating effect.

Nonetheless, all users can track their impact via an article's talk page and activity log, and whilst this is a record of volume rather than quality, patterns can emerge. For instance, the survival of individuals' textual contributions beyond multiple rounds of editing can be assessed. According to Priedhorsky et al (2007, cited in [49]), the top 10 percent of editors by number of edits contribute over three-quarters of 'persistent word views', whilst the top 0.1 percent contribute almost half.ⁱ Alternatively we can use a metric of 'persistent word revisions' to show how words that survive at least four revisions are likely to endure across multiple rounds of revisions, with almost 70 percent lasting beyond 50 revisions [30]. Whilst diverse authorship can be a sign of article quality, with editors appreciating the indirect acknowledgement of their work when multiple contributors improve it [6], making lasting or significant contributions is still a measure of

personal success. Bryant, Forte and Bruckman [6] use feelings of personal responsibility towards sections of the encyclopedia (such as when editors refer to "'my' articles or 'my' work") to distinguish Wikipedians from other users.

Featured articles

Second, successful editors contribute to articles that gain Featured Article (FA) status. These articles are selected from a list of nominated pages, and thus undergo a process of peer review more rigorous and public than the most Wikipedia content [24]. Featured for a day on the Wikipedia main page, they retain the accolade indefinitely. FAs are models of good editing and thus incentivize better editing [6].

"Look, here is our best work" – [6]

Wikipedians who contribute to FA and Featured Portals thus gain respectability and credit within the Wikipedia community. Talk pages record the multiple contributions made to an article considered for FA status, buttressing the reputation of key users who have shepherded a page through the process. However, it should also be noted that the nature of Wikipedia editing work means that whilst an editor may have made significant or persistent contributions, their connection to the content may

be lost over time, reducing the motivational impact of community recognition of a specific page [56].

Barnstars

Third, veteran editors cultivate their reputation by receiving and giving praise. This can be in terms of contributions to talk pages: users express pride when they receive positive feedback or their work is publicly recognized, particularly when it is done by “somebody who knows his stuff” [6].

Users can also give formal accolades. The barnstar is a token of appreciation that recognizes a range of wikiwork, most commonly editing work, but also social and community support actions – such as leading projects, welcoming newcomers and helping others – as well as “mop and bucket” work, fighting vandalism, determining notability and administrative actions [51]. The award is accompanied by acknowledgements of the commendable behavior or work, such as “You are a very productive user and deserve recognition” [51].

Barnstars have an important motivational component. A study that fabricated honors for contributors to the German-language Wikipedia found that award-winners were more likely to continue as editors, having felt respected for their work [57]. However, the benefits of recognition are not equally shared. Although anyone can award a barnstar, they are more frequently given and received by experienced editors [51].

‘Super-contributors’ have been found to be particularly motivated by social image, measured in terms of the propensity to display barnstars and the

size of the user page [16]. Therefore, barnstars – and the underlying system of reputation and value they symbolize – may work to reinforce the hierarchization of Wikipedia (see [Oligarchic politics](#)).

Summary

We have seen the multiple vectors along which frequent and committed editors contribute to Wikipedia, and how these actions and outcomes create a feedback loop that sustains continued participation. Motivation is neither stable nor singular: the six factors identified above likely work in various combinations for different editors, fluctuating throughout their Wikipedia career. More granular data analysis and research that leads to a better understanding of the different segments of Wikipedia’s global population will support the design of interventions that leverage these insights.

Burnout and battles: Stressors on veteran contributors

Despite the cognitive, social and affective benefits that accompany sustained contribution, senior editors are not immune to demotivation. Rather, their commitment to edit is undermined in several directions.

At base, we can consider the increased burden of work placed upon and/or assumed by long-standing editors, who attend to a substantial workload of

ongoing projects and tasks derived from their watchlists, and their engagement in meta activities. As Wikipedia grows, the encyclopedia has become more complex, necessitating a greater proportion of ‘administrative’ tasks such as classification, error correction and coordination, which the most active and experienced editors tend to manage [21]. Iba et al [49] report that reaching agreement on articles takes up increasing amounts of time among Wikipedians, with much of talk page discussion devoted to coordination [58]. Wikipedians invoke norms more often than less experienced editors [30], requiring that they keep up to date with new policies, opinions and trends in interpretation within the informal rules of the Wikipedia space. Particularly in the case of English Wikipedia, the massive number of pages, users and edits has required growth in the rules and conventions that order editing protocol and behavior [58].

Editorial norms have also changed over time. For instance, referencing standards are regarded as having become more onerous: longtime editors have had to shift how they understand sourcing, and may have to go back to add footnotes or external sources to early articles [25]. The high levels of activity as this level of editing may explain Schroer and Hertel’s [10] finding that highly active users experience a negative cost-benefit trade-off in their voluntary engagement: with less time for other activities, Wikipedia work is relatively expensive.

Despite this, it is not common to find complaints about the burden of work within the academic literature. Rather, studies that examine the activity of frequent contributors and administrators find two

common bundles of demotivating factors over the long term: the prevalence of conflict, and the vested interests of Wikipedia’s “oligarchy” [3].

“Wikipedia has changed from the encyclopedia that anyone can edit to the encyclopedia that anyone who understands the norms, socializes himself or herself, dodges the impersonal wall of semi-automated rejection, and still wants to voluntarily contribute his or her time and energy can edit.” – [35]

Interpersonal conflict

On the one hand, conflict is regarded as part and parcel of the editorial process. The involvement of multiple contributors, citing different interpretations of NPOV or diverging on the verifiability of claims and sources, is at the heart of the encyclopedia’s process of knowledge production. However, whilst disagreements over style and substance may be important for accomplishing a more rigorous article, some conflict within Wikipedia is not fruitful.

We have already seen that uncivil behavior is demotivating for newcomers: despite proscriptions not to ‘bite’, Wikipedia’s increasingly rules-driven

culture means that users “can very quickly find themselves being reverted and blasted for stepping over a rule [they] are unaware of” [42]. The profusion of rules that has emerged to handle the massive growth of content may explain aggressive gatekeeping behavior. Since much of policy is subject to interpretation and yet also increasingly undocumented, long-time editors act as normative guardians, generating disputes amongst themselves, and creating another area where newer editors are rejected [35].

Conflict is not only directed at newcomers. Lack of civility, double standards and *ad hominem* attacks, particularly amongst administrators or very active members, have been found to trigger departure [36]. In a survey of the highest-count editors in English Wikipedia, Konieczny [36] found that, after life issues (such as career, health or family), Wikipedians are most likely to depart the encyclopedia because of conflict, with 70 percent of retired editors citing interpersonal conflict as their reason for leaving.

“Defending edits requires an almost unlimited tolerance for argument and friction” – [59]

The reasons for these conflicts are not well articulated in the literature, but feelings of ownership may be an important factor. We have seen that veteran editors carve out distinct areas of work and responsibility, referring to “my” articles

(see [Driving content](#)). Though designed for collaborative knowledge, it is individuals that make wiki content. These “creative ‘I’s”, as Matei and Bruno [60] put it, are bonded with the things they make, leading inevitably to issues of interpretation, personal appropriation, protection and systemic bias. Taken far enough, arguments between users about aspects of an editor’s work can be frustrating, infuriating and distressing, leading to time-outs forced by blocks, or voluntary departure.

We have seen that networks and subgroups are an important part of the collaboration and identification needed to sustain editing (see [Leveraging networks](#)). However, it is also the case that there are multiple competing factions in Wikipedia, most notoriously between those who regard it as an expansive wiki (the inclusionists and relativists) and those who want it to be a bounded encyclopedia (the deletionists or absolutists) [61]. The resulting factionalism has created interpersonal conflict and polarization, which affects morale and community building. This culture of competition, criticism and conflict is in part to blame for the persistent gender gap at Wikipedia [42].

Oligarchic politics

A second issue of concern in the literature is the discrepancy in technical and normative power between ‘ordinary’ editors and those with administrative privileges and/or meta responsibilities. We have already seen how “sociotechnical gatekeeping” [35] reinforces hierarchies within Wikipedia (see [Failing to survive: Reasons for early drop-out](#)). Of course, veteran

editors and meta contributors wield power in uneven ways. Whilst some are “just another editor with a few extra buttons”, others – as argued by a Wikipedia user using the handle Parker Peters – get “drunk on that power” [62]:

They insist that normal editors are "beneath" them, that they should be able to own articles and give their friends a hand up when content disputes arise.

The drivers of reputation and status also have a polarizing effect. Contributors seek to burnish their reputation in order to acquire the credibility needed for the soft power on which Wikipedia’s rule enforcement rests. Jemielniak [3] bemoans the prevailing “editcountitis” in which editors seeking administratorship make thousands of semiautomatic corrections and reversions in order to boost their edit count to the levels required at the highest echelons of the Wikipedia community. Edit count is not, however, enough. Contributors must also compete in the “politics of credit” [31] which rewards longstanding members who engage in coordinating tasks and participate in multiple channels of discourse whilst overlooking other veterans and relative newcomers. As one contributor complained to Forte and Bruckman [31]:

You have ... people who never ever get name recognition at all, but they’ve created a huge amount of high quality content and haven’t caused trouble and have behaved themselves and nobody knows them.

The presence of a “cabal” [3] within Wikipedia’s already stratified community erects further barriers

to inclusion of new and junior editors in Wikipedia governance. It also makes it more difficult to address issues of representation and diversity, particularly at the more senior rungs of editorship [42]. As Carr quips, now contributors need “Secret Wikipedia Scroll SC72 (Wikipedia Decoder Ring required)” to break into the Wikipedia community [61]. Those who don’t meet these conditions of entry, or refuse to play the game, may walk away from Wikipedia and its politics.

Summary

The stressors discussed in this section reflect the items raised in the literature. Much of this is speculative, however. More research is needed to assess how much these constitute the gripes common to any large community or whether they pose significant or growing threats to the retention of veteran Wikipedia editors. These preliminary themes nonetheless offer an important framework for improving the experience of Wikipedia’s long-term and core contributors.

Conclusion

Why do people edit? This paper has reviewed the academic literature on editor motivations, highlighting the key debates as well as the areas of agreement. The principal findings are as follows:

- Wikipedia attracts people who are comfortable using the internet, enjoy undertaking online work (and have the time to do it), have ideological principles based in benevolence or universalism, a desire to learn new skills, and derive enjoyment from the activity itself.
 - Triggered by discovering an error or omission, readers curious about Wikipedia's 'editability' undertake a 'gateway' edit to fix the problem or explore Wikipedia through an editathon or other organized encounter.
 - Once they become more familiar with the structure and culture of Wikipedia, contributors develop new motivations grounded in personal satisfaction, skills development and reputation building.
 - However, many editors leave after just a few contributions. Threats to survival in the early phase include difficulty learning technical and policy norms; rejected contributions and negative feedback; feeling unwelcome or estranged from the image of a typical contributor; and problems communicating and seeking help.
 - Greater tenure and experience mitigates some of these factors, with veteran editors benefiting from deeper acculturation in the Wikipedia community.
- Editors who make regular contributions over months and years are motivated by several important factors, including their habituation to frequent editing; their ability to drive content and specialize in particular areas; their placement within collaborative networks; and their identification and credibility as a Wikipedian.
 - Veteran editors are not immune to demotivation, facing challenges in the form of the burden of policy and watchdog work, the hazard of interpersonal conflict, and the machinations of senior contributors embroiled in clique politics.

“[T]he attempt to create a social space in which power is decentralized, individual participation is high, group allegiance is multiplex, and social control is low is not devoid of contradictions.” – [60]

Caveats and limitations

The research presented in this paper is subject to several caveats. These set the framework for the subsequent discussion of themes for productive future engagement (see [Opportunities for further research](#)).

First, as has been regularly noted, Wikipedia's contributors are neither equal nor uniform, displaying stratifications based on their willingness to disclose their identity, the frequency, type and scale of their contribution, and their mode of collaboration [2]. Their motivations to edit are correspondingly diffuse and changeable. Each of these studies offers part of the picture, and this paper has sought to synthesize these findings.

Doing so has required balancing the twin requirements of analytical utility and complexity. Thus frameworks commonly used in the literature, specifically the tripartite editor pathway and the taxonomy of newcomer, sustained and veteran editors, have structured the discussion, with the reminder that not all editors follow this course, and contributors do not form neatly bounded groups.

We can do more to understand the nuances of the editor experience, and the fluctuation of motivations that accompanies it. More granular analysis of the variety of contributors – along, at a minimum, demographic, geographic, thematic and functional lines – will illuminate the different ways that people deepen their commitment to Wikipedia. The addition of more case studies on small and medium-sized wikis will also augment a scholarship dominated by English Wikipedia.

Second, and relatedly, we must be cautious about the generalizability of the literature's findings across the Wikipedia population. A number of the surveys offer sound and thought-provoking conclusions, but draw on samples that are limited in size, depend on self-selected exuberant contributors, or focus only on the typical Wikipedian (young, white,

English-speaking and male). As above, aggregating, archiving and commissioning significant, persuasive research on what motivates women, people of color, non-English speakers, older people or people with physical impairments, for example, will enhance the existing scholarship and augment this paper.

Third, the field of Wikipedia studies is relatively young, as befits a subject less than 20 years old. This paper is based on a review of over 70 pieces of commentary and scholarship of varying impact and maturity. This offers a wide spread of perspectives on Wikipedia's contributors, although at the cost of including fewer in-depth works such as book-length manuscripts. There has been a strong effort to include scholarship from across the lifespan and geographic scope of the encyclopedia. However, the academic literature necessarily lags behind developments at Wikipedia, meaning that normative, cultural or technical changes introduced relatively recently will have not yet had external review. Moreover, the relative scarcity of publically available studies of other language wikis written in English limits how much we can know about editor experiences across the Wikipedia ecosystem.

Recognizing these limitations means the paper can easily be extended through a review of additional scholarship, and the commissioning of future research (see [Opportunities for further research](#)). Before outlining the lines of further inquiry, we review suggestions made in the existing scholarship of ways to address motivational barriers and enhance Wikipedia's offering to users.

Recommendations for improved editor experiences

The studies profiled in this paper address a range of issues related to Wikipedia contributors and their motivations. Many of these conclude their analysis with recommendations for Wikipedia's future development. Despite the diversity of theoretical and methodological approaches, these suggestions overwhelmingly emphasize greater personalization of the user experience, coalescing around the themes of enhancing communication between users, and supporting specialization.

Enhance communication

Essential to the encyclopedia's success is communication, enabling diverse, disconnected individuals to work together remotely and asynchronously. Despite the centrality of collaborative discussion to wikiwork, the academic literature repeatedly criticizes the persistence of techno-cultural barriers to inter-user communication and networking.

Support collaborative conversation

Some of the recommendations are technical in nature, focused on ways to break down communication barriers between newcomers and old-timers, in particular. For instance, in line with the insight that notifications and channels for communication have been found to encourage engagement in other online communities [46],

Halfaker et al propose a change in the interface to inform editors prior to reverting a newbie [41]. To encourage communication between mentors and protégés, Musicant et al recommend improved features such as threaded discussions, simplicity in cross-page communication, and more reliable notification of message receipt [44].

“We spend too much time ‘defending’ Wikipedia and not enough time bringing new users into the fold, being polite, being nice. Teaching them about policies, about the manual of style. Editing alongside them.” – [62]

Encourage kindness

There is also a notable focus on cultural shifts to enhance communication, particularly to benefit new and tentative editors. Chief amongst these recommendations is the importance of changes in tone and manner to ensure interactions are courteous and kind. Collier and Bear [42] encourages Wikipedia to create ways to encourage social exchange rather than “mutual criticism” to create a more welcoming environment for female editors. The feedback process is especially identified as requiring more sensitivity, with Halfaker, Kittur and Riedl [41] suggesting that more experienced users should use the process of review

to “teach” rather than “berate”. Reverted editors in particular may need to be better supported in personalized ways to guard against withdrawal [41].

Connect users to friends and mentors

Greater personalization in correspondence may also enhance newcomers’ experience, in terms of welcoming them to the platform, reinforcing incentives to participate in the community, and mitigating feelings of demoralization; as well as connecting contributors to task or interest niches in which they may more quickly find their place. For instance, Schneider, Gelley and Halfaker [40] recommend increased opportunities for co-editing in order to improve the process by which an article moves from the draft stage to the mainspace. They suggest that articles are flagged with recommendations about editors who have worked on similar topics or whose favorite tasks fit with the technical problems that need to be addressed, so that newcomers can receive help to fix issues rather than abandon their draft or the platform altogether. This suggestion obviously requires better communication between users, including notifications to recommended editors and ways for people to access assistance.

There is also the possibility of supporting communication beyond Wikipedia. Despite the norms against social networking within Wikipedia, and the importance of anonymity or pseudo-anonymity to many users, Musicant et al [44] advise a shift towards interactions and networking outside of Wikipedia to enable those who want to communicate on items not directly

related to article editing to find support and community.

Support specialization

The second key recommendation is supporting specialization. We saw in the Specializing section that task specialization can be a driver of sustained contribution. Several studies recommend directing registered users to specific ways to contribute along their lines of interest, in order to improve retention and enable greater support. There are two ways to accomplish this.

Distinguish editor career pathways

The first route is to distinguish editors according to the phase of their Wikipedia ‘career’. We have seen that the literature offers several different ways of identifying editors at different stages of their career, an inconsistency that is analytically problematical (see [Introduction](#)). Nonetheless, there is broad agreement that the needs of “peripheral” and “core” participants need to be addressed differently [56]; and that tailored, supportive and social early interventions can increase the likelihood of continued contribution [35].

This may require better ways of distinguishing different user ‘personalities’. For instance, Halfaker et al emphasize the importance of discriminating between good-faith newcomers and vandals so that early editors are not unduly targeted in the critical first stage of their editing career [35]. Panciera, Halfaker and Terveen [30], who argue that Wikipedians are identifiable from their very first

day, suggest identifying potential leaders and enforcers of community norms early on by assessing the ways users invoke policy in talk pages and other interactions. This might help to ensure they remain in the community and “rise to positions that suit them” [30]. Attitudinal drivers of Wikipedia are an underdeveloped area of research, inviting more work that gets into a deeper understanding of the ways open-content creation appeals to or repels different personality types. This information could improve customization for early users, as well as offering ideas for improving the representativeness of the editor population.

Direct editors to favorite tasks

The second, related route is to identify different types of editors, hence the efforts to catalogue the wide range of wikiwork and generate editor typologies (see [Specializing](#)). Noting the variance in motivation and editing skills, West et al recommends personalizing viewing and editing interfaces for specific types of users in order to lower the threshold of becoming an editor – for instance, those who show an initial interest in grammatical editing might be led to watchlists for pages needing typographical work [5]. Kriplean et al [51] also note the importance of templates for attracting editors interested in specific work classes to a given issue. Antin [1] suggests that editors can learn more about the diversity of roles and tasks by enhanced transparency: for instance, a “meet the author” segment could illuminate different pathways to sustained contribution. It should be noted that more recent research by Morgan and Halfaker [37] found that interventions around

task-routing tested by Wikipedia’s Growth Team had no significant effect on retention rates. Supporting specialization along these lines may therefore require more tools to identify the scope of users’ interests and capabilities. In both cases, efforts to support specialization need to avoid aggravating the worrisome effects of social stratification that alienate new users and demotivate veterans (see [Oligarchic politics](#)).

Opportunities for future research

Although the literature on Wikipedia is thickest on editor motivations, with broad consensus around the importance of intrinsic drivers, the data is at once insufficiently broad and inadequately granular to develop a nuanced picture of editor motivation. We therefore need research that addresses a number of important gaps.

Recognize the diversity of editors

Firstly, we can better disaggregate editors. On the whole, the research design of the studies reviewed in this paper assumes that a) all contributors are alike, and b) motivations are stable [4]. Generally, the studies have not segmented the data according to demographic factors, making it difficult to assess and compare the range and depth of motivations that drive editors of different genders, ages, socioeconomic backgrounds and identities. In part, of course this is because this information is not revealed as part of the user profile on Wikipedia, making it difficult to gather data on specific identity

segments. Nonetheless, results about editor motivations that are derived only from white, male, young, English-speaking contributors obviously do not give a sufficiently nuanced picture for understanding what makes people edit. Research that utilizes the theoretical concepts and empirical methods of the academic literature with more fine-grained data (such as that found in Wikipedia's own surveys) would therefore be beneficial.

Analyze comparative and longitudinal data

Secondly, we can address the paucity of comparative or longitudinal data. Without comparative data (for instance, between IP and registered users, between readers and editors with one edit, between the first and subsequent edits, across time or between languages), or data that examines the same cohort over time, we have insufficient information about people's expectations of editing and their subsequent experiences – for instance, whether reasons such as improving public knowledge or learning skills trigger the first edit (lead people to water) or are retrospective explicators of initial behavior (the way they like to tell it). We do not know enough about which combinations of motivations initiate or sustain editing, or lead to people pursuing repeated anonymous rather than registered editing. Insights into why people edit Wikipedia will be augmented by research that analyzes the cultural and geographic component of motivational drivers by comparing different subsets of the population of contributors of English Wikipedia, with members of small- and medium-sized language versions.

Relatedly, it is difficult to develop a fine-grained understanding of early editor motivations and how these change without research that segments the data by editors' experience or tenure. There is research that considers editor 'careers' but comparison is complicated by the inconsistent and varied definitions of editor stages. This is a significant gap because we know that whilst people might share common goals about contributing to the encyclopedia, they do so in different ways even from the start [4][8][30]. This problem is not unique to Wikipedia – research into other online communities also struggles to understand participant trajectories, as well as reasons for termination or backslippage [33]. As one of the most significant content-creation communities, Wikipedia offers an excellent opportunity for such research.

“We have no data about non-contributors.” – [4]

Investigate readers and non-participants

Thirdly, we need to know more about why people do not press the 'edit this page' button. Unfortunately, because the academic literature does not significantly examine readers, we are faced with an important knowledge gap. Is this a consequence of focus or fashion? The behavior and motivation of editors has acquired a certain critical mass that encourages further investigation. Editors are also a

more convenient sample population. However, this caesura has important consequences for how we understand contributors' journeys, perpetuating the notion, as Miquel-Ribé [46] puts it, that the reader is "a second-class user ... [rather than] a possible future editor still in a learning phase". It is clear that reading is not just free-riding, but a form of participation that can shape the encyclopedia [63][64]. Greater interrogation of the steps prior to the first edit – such as the activities people do before joining Wikipedia or their levels of digital literacy – may therefore help us answer why some editors remain anonymous or use multiple accounts for nefarious or good-faith purposes.

We can also learn more about contributors by examining former editors and non-readers.

Non-participation does not necessarily mean non-engagement [65]. Distinguishing the reasons for disinterest, abstention or exclusion, such as lack of awareness, fear of incivility or privacy concerns [65], will illuminate why people do not seek to – or do not want to – edit Wikipedia, which will enrich our understanding of motivations to edit.

Questions for further research

These gaps and limitations set out an important and exciting agenda for further research. In addition, the questions that researchers of Wikipedia themselves pose about problems still to be deciphered offer productive areas of future inquiry. Amongst the many papers reviewed here, the following reflect the most common or outstanding questions:

- What makes readers become first-time editors? [5]
- What are the similarities and discontinuities between the incentives of average users and administrators? [14]
- Can we gain a better understanding of the personality traits of Wikipedians and their motivations? [22]
- What are the effects of barnstars on member retention? [51]
- Can we learn more about Wikipedians' 'reference groups'/'important others' to understand how social factors influence contribution levels? [19]
- How do personal relationships develop in Wikipedia? [56]
- What causes the social stratification of Wikipedia society? [48]
- What are the social trajectories of contributors who stop participating? [6]

An additional opportunity for framing a program for investigation comes from exploring in more detail underdeveloped but promising findings in the literature as well as questions that have not yet been answered. These include the relationship between social networking, real-world socialization and Wikipedia work (as gestured in, for instance, in [5] and [25]); the appeal of Wikipedia as an outlet for people who enjoy craft and DIY culture, or enjoy meticulous hobbies; the mechanisms and inhibitions of interpersonal trust and credibility for different types and contexts of editor; and the impact of proscriptions against Wikipedia as a

scholarly resource on the future generation of editors.

Finally, research into how, why and what people edit on Wikipedia will be augmented by comparison with case studies of collaborative work, online communities, and volunteerism; and from insights drawn from an array of literatures beyond the scholarship on Wikipedia. Social science theory can be an invigorating source of principles for design innovation [34][45], opening up a range of new perspectives and providing analytical tools for development.

Notes

^a [Wikipedia:Statistics](#), accessed 7 February 2020.

^b Considering these findings, it is surprising that subsequent studies have not explored further the idea of fun and enjoyment, presenting an opportunity for further research.

^c In research where ideological reasons do have explanatory power, this tends to be for more experienced editors rather than a driver for initial or novice contributors [4][6][33] (see [Identifying as Wikipedians](#)). However, even this is not certain: a study of 850 Wikipedia contributors found that altruism was not supported as a motive for sustained contribution to a public good [16], creating a debate about the significance of altruism as a principal motivator even at later stages of contribution.

^d Many users access Wikipedia's editing functions anonymously, traceable only by their IP address. They may edit only once or return using the same or different IP, but there is limited academic research on these contributors. Once registering as a user, however, contributors begin a more accountable editing pathway, meaning that most research focuses on registered users.

^e The study did not include social constraints on editors' editing rhythms, which the authors recommend as an area for further research.

^f Notably, the studies reviewed here rarely included qualitative or quantitative data about stewards or

bureaucrats, implying that this group is not widely known outside of Wikipedia and/or difficult to access.

^g [Wikipedia:Wikipedians](#), accessed 30 January 2020.

^h Reputation and status are sometimes distinguished, with status comprising long-term recognition compared with more temporary, friable reputations [4]. In this paper, however, reputation covers both informal recognition and ranked status.

ⁱ Although this metric is often used as a way of assessing editing patterns, there is criticism of the assumption that text survives for reasons of accuracy rather than having a kind of protected status by having been created by an early editor (see the discussion in [25]).

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