

We Are Dynamo: Overcoming Stalling and Friction in Collective Action for Crowd Workers

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ABSTRACT

By lowering the costs of communication, the web promises to enable distributed collectives to act around shared issues. However, many collective action efforts never succeed: while the web's affordances make it easy to gather, these same decentralizing characteristics impede any focus towards action. In this paper, we study challenges to collective action efforts through the lens of online labor by engaging with Amazon Mechanical Turk workers. Through a year of ethnographic fieldwork, we sought to understand online workers' unique barriers to collective action. We then created Dynamo, a platform to support the Mechanical Turk community in forming publics around issues and then mobilizing. We found that collective action publics tread a precariously narrow path between the twin perils of stalling and friction, balancing with each step between losing momentum and flaring into acrimony. However, specially structured labor to maintain efforts' forward motion can help such publics take action.

Author Keywords

Activism; infrastructure; human computation; Amazon Mechanical Turk; design; collective action.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

In this paper, we examine the challenges that online collectives face when they gather not just to talk, but to take action. Collective action is inherently related to the work of human-computer interaction in a networked world. It marks the field's aspirations for the power of digitally mediated collectives to generate change, whether that take the form of pixels, profit, or progress.

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An overarching research narrative celebrates the web's affordances for galvanizing coordinated actions (e.g., [3, 4, 5]). However, many collective action efforts never succeed. The Internet's sword is double-edged: the same affordances that seem to make it an ideal setting to gather also seem to debilitate actual action. It is much easier to derail an effort than to push one onward to success [21]. People may talk past each other [24], and even when they do engage, more discussion can mean lower-quality outcomes [22]. Unfortunately, across many domains, the majority of collective efforts fail [17, 32]. Online coordination is even more challenged when political and social stakes are high or when action may expose participants to harm [4].

Amazon Mechanical Turk (AMT), a crowd work platform, embodies many of these promises and perils. To some, crowds bear the potential of mass action and people power. Yet as Irani and Silberman have argued [19], AMT's design directs this collective power into reliable, steadily humming computational infrastructure. This infrastructure is designed to keep questions of ethical labor relations out of sight.

Outside the infrastructures that AMT provides, Turkers have formed collectives such as TurkerNation, MTurkGrind, and Reddit's /r/HITsWorthTurkingFor. On these platforms they share well-paying work, discuss employers, educate newcomers, and consult with employers who are willing to communicate [30]. Turkers in these communities engage in some short-term or small-scale collective action (e.g., to raise funds for a colleague), but efforts that require sustained effort and critical mass are less likely to succeed. Workers told us that collective action is difficult because of divided loyalties, time pressures to earn money, and risks that agitation poses to their reputations and to the availability of crowdwork more generally.

We spent over a year engaged in crowd worker forums, discussing collective action with Turkers individually, and speculating on how collective actions could work with Turkers. We strengthened relationships between the design team and Turkers interested in collective action and, on the basis of those relationships, designed, adapted, and analyzed Dynamo, a platform for Turker collective action.

Dynamo is a community platform designed to gather ideas, energy, and support directed towards collective action. Workers can assemble, whatever their differences, to

communicate pseudonymously through Dynamo. They nominate issues for change and make concrete steps to act on them. Over the course of design and development, we used the system with workers and continuously reconfigured [39] relationships, labor, and communication technology to support issues workers encountered in organizing around action. Workers first collectively authored a set of ethical guidelines to rein in problematic academic research practices. To date, 171 workers and 45 requesters have signed the guidelines. Dynamo has since been used by another group to develop an open letter campaign to humanize Turkers in the public imagination — a campaign that has since attracted coverage from major news outlets. Dynamo plays host to a still larger set of ideas for tactical interventions and alternative futures.

In order to act, workers needed to navigate between twin perils: *stalling* and *friction*. Efforts *stalled* — lost momentum — when consensus-building or the next concrete steps became too labor-intensive to sustain worker engagement. Efforts faced *friction* when an action — often one taken to avoid stalling — provoked divisive disagreement amongst workers, or when fly-by criticisms diminished motivation. Friction seemed inevitable when a proposed future affected people in different ways and evoked anxieties of worst-case outcomes. Stalling and friction are linked: efforts stalled when friction accumulated or when the fear of criticism led to no activity. Likewise, avoiding stalling by making a decision could result in friction when others disagreed. The work of organizing was time-consuming and exhausting.

When facing stalling and friction, we found that structured labor by a trusted actor could move the effort forward and prevent failure. We developed four strategies to transform friction into progress towards action. First, if the collective effort was stagnating, we proposed deadlines on the current goal. Second, we pursued an act-and-undo strategy, proposing actions that could be done experimentally without consensus but could easily be undone in the face of objections or negative outcomes. Third, we worked with organizers to portray an image of success to produce hope among participants. Fourth, if the effort was in conflict, we repeated posts using more neutral language or removed topics of unnecessary tension from consideration.

This paper details and reflects on our social and technical engagement with collective action among Amazon Mechanical Turk workers. We introduce Dynamo as a meeting space for publics that form to act on issues. We illustrate the challenges of friction and stalling with three vignettes drawn from two cases of collective action undertaken through Dynamo. We also explain our own involvement in moving efforts forward. We argue for recognition of design as well as structured emotional, cognitive labor as crucial in enabling online collectives.

THEORY AND RELATED WORK

The web enables dispersed groups to gather and act [3, 11]. Some celebrated examples include groups discussing democratic reforms [26], solving difficult math and science problems [5], and protesting unfair actions [10].

Collective Action

Research on online collective action largely explores the social dynamics involved when groups of people aggregate their efforts using the web to push a cause forward. In some cases, online crowds take roles to support an ongoing social movement [8]. Online crowds can also curate, filter, and recommend important information, doing work researchers have recognized as “functional, if not necessarily central” to social movements [38]. In this paper we focus on efforts that originate and function entirely online [4].

Social movements can succeed online when organizers have ready access to large audiences that are buttressed by anonymity [10]. Organizers can directly and cheaply communicate with like-minded individuals rather than leverage personal social networks. Earl et al. term this phenomenon “organizers without organizations,” arguing that the complexities of coordination among social movement organizers is no longer necessary online [11].

In these success cases, participants have the possibilities of loyalty and exit (e.g., petitions, boycotts), but not voice (see [18]). In other words, they may choose to sign a petition or to leave if they don’t agree. But, there is little place for discourse when the problem, its source, and its solution are not clear. Further, exit is an insufficient option when a project might still affect those who dissent. For example, research on Wikipedia identifies fights surrounding controversial edits, “gate-keeping” behavior around articles, and the chilling effects these phenomena have on content creation [21, 22]. This suggests that online collectives face particular challenges establishing complex strategies in the face of high political and social stakes.

The stakes are precipitously high for workers on Mechanical Turk, who fear the prospect of losing access to work. Actions taken by some could affect all members of the workforce. Goals are open-ended, actions bear consequences, and those repercussions are shared. The collective needs to work together to develop its goals and execute them. In the next section we further examine this challenge by relating it to the formation of *publics*.

Forming Publics

Designing for collectives to act requires deep theoretical understanding of the social dynamics of these groups: What brings them together? How can they use language to articulate issues? Further, how can they reach agreement and define shared goals? Groups that gather around shared issues echo Le Dantec’s and DiSalvo’s Deweyan formulation of publics [9, 27]. Publics emerge when “those indirectly and seriously affected for good or for evil form a group distinctive enough to require recognition and a

name.” These publics come together through their shared conditions and develop formulations and analyses of the issues they face. Habermas likewise views publics¹ as groups of people who gather to discuss issues of mutual interest and reach common judgment when possible. [16]

Much of the work on publics thus far has focused on the conditions of discourse and assembly [9, 27]. We build on such work, but take up the conditions by which these publics can successfully *act* together on shared issues. When shifting from deliberation to action, we argue that the challenges of *stalling* and *friction* threaten a public’s success. We will expand on our experience to describe specific kinds of organizing infrastructures and communicative labors that can help such publics.

OUR METHOD AND POSITION

We undertake this project not as outside observers, but as people with stakes in the ecology of human computation. We have been requesters and workers on Amazon Mechanical Turk, and we have investments in Computer Science, a field that produces and legitimizes human computation. We produced Dynamo through a process of collaboration with interested workers not only to build something for them out there but also to call into question our own design practices and assumptions [41]. We approached this not through “detached intimacy” but by working towards “located accountabilities” [40] that recognized the perspectives and power relations between workers and our team. We drew from anthropologically informed design traditions, including ethnography for systems design and participatory design (see [31]), to address the politics of work [2, 12] in the face of an absence of institutions to represent worker interests. We also drew on anthropological methodology that examines how collaboration can generate insight about disciplinary methodology [33].

Our process was highly interactive, but structured only in hindsight. We began by looking for existing forms of collective action by reading publicly visible forums and posting surveys to AMT itself. We also found a few workers early on who were interested in the possibilities of collective action and engaged with us more directly. Slowly, as our design process progressed, we attracted engagement from larger numbers of workers, discussing Turking and the project with over 100 individuals in total. We talked with workers, proposed scenarios to check our understanding and imaginations, and we responded to their critiques, feedback, and suggestions as built and maintained Dynamo. Turkers are busy and distributed, so much of this

¹ For Habermas, publics are part of a normative theory of democracy that must have a relationship with the sovereign state [14]. Future work will examine over a longer duree the relationship of Dynamo activism to the state itself.

talk happened through email threads, forum posts, Internet Relay Chat (IRC) conversations, and forum private messages. One member of our team was at times in communication with Turkers online for several weeks. This period of ethnographic research spanned more than a year.

Our observations helped us understand both the complexity of workers’ existing social organizations, and the challenges of acting. Observing and asking yielded more than an understanding of workers’ social categories. We also established an ongoing relationship of trust by showing ourselves to be accountable to worker critiques. The extent of our engagement mattered when our design work led to missteps, as we discuss later. Our first lesson was the extent of collective action already existing among Turkers.

AMT AND THE COLLECTIVES THAT MAKE IT WORK

Amazon Mechanical Turk is an online labor market where requesters publish microtasks, and crowd workers can perform those tasks for monetary compensation [30]. AMT describes this service as enabling users to incorporate labor directly into computer systems. Researchers have argued that human computation in its current form renders workers invisible, thus eliminating the moral impetus to consider worker conditions or needs [19].

In the backend, researchers describe large numbers of highly educated workers who work full-time to make ends meet. These workers are faced with a little-regulated labor marketplace, variable and often low wages, and unbalanced power relations favoring employers [20, 23]. For instance, employers can choose whether or not to pay for completed work; workers lack legal support in pursuing wage theft or minimum wages [19].

Workers already use social media and operate several forums where they share leads on good work, discuss their experiences, and support one another. Turkers have also created userscripts to add their own enhancements to the AMT interface, and maintain shared information repositories. These interactions constitute strong online communities [30]. The forums are an important way in which people learn to manage their work to meet their needs. As one worker explained to us:

“The community helped to introduce me to the rules, norms, and averages [...] how to choose the right HITs, which plugins or add-ons that would be helpful, and what to do in case of a rejection.”

Workers also act collectively in more eventful ways, such as supporting a particular member during a time of personal need. We found these cases to be very specific forms of collective action where group consensus was not crucial to success. For example, a worker told us about fundraising for a family who faced hardship close to Christmas: “*My forum put together something like 200\$ all together in order to give the little girl a Christmas. I chipped in five bucks for it. We didn’t make a list of contributors or anything, it was just something nice to do.*” We observed

Powering change on MTurk

We are a community of 470 Turkers and growing...!

The screenshot shows a website interface for 'Dynamo'. On the left, under 'Trending Ideas', there is a link titled 'I think we should create a Dynamo badge for good requesters who are following the guidelines so they can put it on their surveys.' with a vote count of 44. In the center, under 'Live Campaigns', there is a section for a campaign titled 'Dear Jeff Bezos' with a message and links to join the discussion and view the wiki page. A green button labeled 'Letters >' is visible. On the right, a sidebar notes that the page was posted 4 months ago and describes it as a platform for hosting letters to Amazon.

Figure 1. Dynamo is a collective action platform for Amazon Mechanical Turk workers. It has been used to author guidelines for ethical requester behavior, a letter campaign to Amazon CEO Jeff Bezos, and twenty other efforts.

that when individual actions had effect (e.g. emailing requesters), and when nobody would object to the effort, forums proved effective at coordinating. They struggled more when consensus to share a burden or discussion was required.

Trust grows fragile as the communities take on more members. All workers we spoke with interact exclusively online. Disagreements might erupt, or members may begin to suspect the motives of a particular member. We heard of disputes over members who were suspected of operating multiple accounts, colluding with employers behind the scenes, or even just making a statement taken as insult. The forums archive these interactions and reconciliation can be difficult online. Researchers have found that members of online-only communities may struggle to achieve trust [6].

These problems were compounded in interactions between workers of different online forums that maintained different norms of what it meant to be a good AMT worker. Disagreements among these workers were sometimes cast as fundamental rifts between entire communities. Workers call the most explosive of these exchanges “mega-drama.”

Though the AMT workforce is host to many kinds of collective life, most of the Turkers we spoke with considered unions – the iconic form of worker collectivity – as inherently impractical in this environment. A number of dynamics made a unified voice and representation difficult to imagine. New workers join daily and some stay only for days or weeks. “Work contracts” between workers and employers last for minutes. Further, many workers were attracted to AMT because of the personal independence it afforded. Many worried that the unified voice could not account for their particular needs and ethics.

Turkers must weigh collective action against personal risk to their worker account, work environment, or reputation as online workers. For many, AMT serves as a crucial source of income; therefore they actively prevent any action that may put that source at risk. Some workers felt that if wages went up, they might lose sources of employment. Another worried about taking actions that attracted legal attention to

crowd work. Still others worried about being singled out as agitators and getting blacklisted by Amazon or employers.

While some of these issues are shared with traditional labor organizing movements (e.g. [34]), many are exacerbated issues of organizing for online work. For example, the labor force on AMT has a very high turnover: hiring and firing employees is as simple as registering on a website and deleting a row in a database. Further, Turkers have (almost) no opportunity for face-to-face interactions, no way to communicate with all other Turkers, and no organizational body to make or enforce decisions.

We interpreted these social affordances and vulnerabilities as constraining the kinds of collective action that communities could undertake. With this understanding of existing collective action, we sought to build a system that mitigated these risks, promoted discovery of shared issues, and allowed for collaboration towards action goals.

DYNAMO

Based on our initial engagements, we worked with Turkers to design Dynamo (Figure 1), a platform to support collective action in the AMT ecology. We framed Dynamo around creating publics that are just large enough to take action — unities without unions.

Based on our interactions with workers, we focused Dynamo’s design on three affordances: *trust and privacy*, *assembling a public*, and *mobilizing*. We describe the system design and each of these in detail below.

Trust and Privacy

For any kind of collective action, Turkers desired safety from external retribution. They anticipated retaliatory action from Amazon and requesters, expecting that Dynamo would become a target:

“are they asking for our worker id and why? to make easy fro [sic] Amazon to serve them with a subpoena so they know who to suspend” –A Turker

Account suspension is excommunication from Mechanical Turk. Placing individual members’ accounts at risk could seriously threaten a Turker’s career and livelihood. Turkers

needed to be able to gather in a venue where their words could not be tied to their professional reputation.

Dynamo's legitimacy relies on each user trusting that all other users are fellow Turkers. Participant safety, privacy, and the deferral of "mega-drama" led us to give workers the option of new identities in Dynamo. We achieved this in two ways. First, we require that workers complete a Dynamo HIT on Amazon Mechanical Turk. That HIT has a qualification requirement of more than 100 approved HITs. Workers who accept the HIT receive a unique, one-time registration code for their account. No record relates any worker IDs to any particular account. Second, workers used randomly generated screen names to disconnect their identity on Dynamo from previous forum identities. These names followed the pattern *adjective_animal* (e.g. *light_dragonfly*, *excited_iguana*). During registration, workers could generate new names at random until they found one they liked.

We were concerned that this approach risked losing the power of existing social ties. During deployment, however, we learned that Turkers were aware of their own community's activity on Dynamo through backstage conversations. But the screen names enabled more positive discussions with those from other communities, if only because they implied an onstage debate where the identities remained new and unknown.

Assembling a public

For actions to be successful they needed support and participants to share the labor. We designed Dynamo to allow for workers pressed for time to lend support or interject critique at different levels of involvement. Dynamo focuses on short idea pitches. Ideas act as polls that enable publics to form around them. Pitching a new idea requires a 140-character description, such as "I think we should create a Dynamo badge for good requesters who are following the guidelines so they can put it on their surveys."

Workers can vote the idea up or down, and the idea graduates to become a campaign once it acquires 25 upvotes and has more upvotes than downvotes. Once a user submits an idea, Dynamo automatically generates a new forum thread to host discussion and debate on the idea.

Mobilizing

Once an idea graduates to become an active campaign, Dynamo provides affordances that allow users to discuss, take action, and track progress.

Dynamo supports discussion through a web forum where each active campaign has at least one dedicated thread. The system automatically subscribes those who had previously upvoted the relevant idea or who later post a reply. It also engages users by notifying them when others "thank" them.

Campaigns need general software support. Dynamo hosts a MediaWiki installation for users to author content through their pseudonyms. It also allows workers to place buttons

on the Dynamo site to capture calls-to-action, such as a button click to sign a declaration.

Dynamo shares a list of users who have performed an action to provide visibility into its popularity (e.g., "light_dragonfly and 170 others have signed the document"). The Dynamo team writes periodic update emails summarizing important campaign developments as necessary. The emails act as a megaphone, attracting attention to the task at hand and calling out to others to join.

DEPLOYMENT

In the six months since Dynamo's deployment on the web, 470 unique Turkers have registered. The site has had over 5,800 unique visitors and over 32,000 views. Among these are Turkers that post vigorously on other forums and are active participants of Turker communities. Our goal is not to motivate every single Turker to join; instead, we sought to attract small groups of motivated people, including those who could bridge communities.

Ideas for Action

So far, Turkers have gathered on Dynamo to discuss twenty-two ideas for action, and two have transformed into active campaigns. Turkers can execute some of these ideas on their own; others would require Amazon's support.

The system has hosted a range of ideas, including: creating a worker-operated alternative to Amazon's opaque Masters worker certification; software to store and publicly share messages that Turkers exchange with requesters; wiki-writing a history of AMT; getting rid of CAPTCHAs between HITs for workers who have completed more than 10,000 HITs; and creating a worker-run platform like AMT.

Two ideas on Dynamo have launched as campaigns. The "Guidelines for Academic Requesters" generated worker-generated guidelines for ethical research on AMT. A "Letter Writing Campaign" aims to create a positive image of Turkers in the public eye.

Guidelines For Academic Requesters

Somewhat surprisingly to us given our position, Turkers used Dynamo first to curb poor academic research practices on Mechanical Turk. In the weeks prior to Dynamo's launch, an academic researcher began experimenting on Turkopticon, an independent Turker rating system. This experiment included the injection of fabricated data into Turkopticon, causing disarray among Turkers who rely on the accuracy of this information for their work. After several days of investigation, the Turkopticon community identified the researcher who fabricated the data. This incident took up much time and energy and caused much frustration, prompting questions about the ethics of research on AMT. While the research in question was approved by an IRB, Turkers agreed that IRB committees lacked adequate exposure to the vulnerabilities that they faced.

A group of Turkopticon maintainers and users responded by suggesting the community draft publicly available ethics

guidelines to guide IRBs and requesters towards better behavior. Like in many social movements, emotionally charged incidents became a trigger for collective action [15]. This became Dynamo's largest and most active campaign. Using the Dynamo Wiki, members collaboratively generated a comprehensive online guide covering matters such as fair pay, how to respect Turker privacy, and how to respect Turker communities online. The guidelines are also available as a 23-page document.

Once Turkers had authored the main content, the organizing team set a one week period for soliciting comments and edits before freezing and launching the document. This was a laborious period of listening for feedback, responding to critiques, and building consensus across multiple communities. After several days, Turkers began soliciting endorsement from others within their communities and later from researchers involved in crowd work. The drafting and initial push for signatories spanned just over one month. In total, 216 participants have signed the guidelines: 45 researchers and 171 Turkers. Members of one Turker forum have started to invite their peers by changing their forum signatures to: "Have you signed the Dynamo Guidelines to support fair treatment of MTurk workers?" We have also observed requesters referencing the guidelines in their HITs: "*Wow, [academic requester] survey's debrief page has recommendations from Dynamo. Nice one Turk community.*" – A Turker

Letter Writing Campaign to Jeff Bezos

Another campaign on Dynamo calls for a collective effort to show the world who Turkers are, written from their own viewpoints. It is a reaction to media portrayals of Turkers as downtrodden, disempowered cogs in a machine. It instead aims to humanize perceptions of Turkers:

"This is a writing campaign for Turkers to let Jeff Bezos, head of Amazon and brainchild behind mTurk, and the rest of the world know all about who we are. The intent is to get Bezos to see that Turkers are not only actual human beings, but people who deserve respect, fair treatment and open communication."

This idea reached 50 upvotes and launched as an active campaign early October 2014. However, the movement wasn't limited to Dynamo. Individual Turkers publicized the movement within their own communities by posting to daily threads and creating website banners. Campaign organizers also raised \$60 to reach out to a larger group of Turkers through AMT. They posted a HIT that was a three-minute paid vacation inviting people to learn about Dynamo and participate in the letter writing campaign.

A page on Dynamo hosts the letters that Turkers have chosen to share publicly (wearedynamo.org/dearjeffbezoz), 21 Turkers have posted their letters to this page but we anticipate that more people have participated by emailing Jeff Bezos directly. The letters focus mainly on Turkers' personal lives, their work on AMT, and the difficulties they

face. The campaign has received attention from many media outlets including The Guardian, The Daily Beast, and two European radio stations. Hence, Turkers' have been successful in reaching their goal of positive publicity.

Historically, labor movements have made similar efforts to gain public recognition for workers and the difficulties of their work, as a stepping-stone for further achievements [34]. For online workers – hidden behind their monitors – this is even more challenging, since gaining visibility and recognition as "human beings with rights" is a task in itself.

PUBLICS THAT ACT AND THEIR PROBLEMS

The previous section detailed Dynamo's successes. In this section, we focus on its constant brushes with failure.

The loose groups that form around ideas and discuss them on Dynamo share the characteristics of Dewey's *publics* [7], in that it is a group rallying around an issue that affects the people therein. However, unlike most conceptualizations of publics, Dynamo's publics did not stop at identifying, articulating, and debating issues. They also needed to transform interest into concrete action. This meant significant effort: deciding (or arguing) between alternatives, and facing failure.

We argue that these are not only publics; they are *publics that act*. These publics are often entangled with discursive publics, but also require (as we will show) distinct kinds of labor, structuring, and organizing. Importantly, people had to make significant efforts to prevent the actions on Dynamo from failing due to one of these causes.

In Dynamo, these publics constantly threatened to disband. They navigated between twin failures we term *stalling* and *friction*. In this section, we detail these challenges of publics that act, and how they are intrinsic to the process of forming collective action in online environments.

Stalling

Due to the upvoting process, Dynamo's publics began with an air of excitement. When members believed that the effort would succeed, they were more likely to contribute, creating forward momentum that seemed self-perpetuating. However, the reverse was also true: when effort slowed, everyone was aware of the inactivity, and members became more averse to risks and less willing to spend time on these efforts. If this slowdown was not addressed, the gathering public quietly dissipated. We call this process *stalling*.

For example, emotions ran hot during the Turkopticon "mega-drama" event when a researcher injected false information. Several Turkers volunteered to lead the effort. However, weeks later when the requester wiki lay only half-finished with glaring TODOs throughout, contributions on Dynamo slowed to a trickle. The requester wiki only succeeded because one Turker decided to sprint and dedicate twenty hours to finish the first draft.

Like the lack of progress that becalmed the guideline draft, *stalling occurred when participants perceived that an effort*

was losing momentum. The challenge was most directly characterized by a decline in activity. Often, it occurred when the next steps were difficult to identify or required too much effort for a single person to accomplish. Once stalled, it became difficult for the public to regain momentum.

The letter writing campaign also stalled. After weeks of discussion, 6 Turkers had written and submitted their letters. The campaign organizer contacted us:

"So, it seems no one is interested [...]. [A Turker] just says we're doing it wrong, but won't say how to do it right, and no one else has input."

The movement had lost momentum. We discussed options with other invested Turkers. As active researchers, some of us knew journalists interested in microwork and got the group's go-ahead to get advice on publicity strategies. The journalist's enthusiasm and concrete advice reinvigorated the process by creating a new source of hope. All users who had shown interest (i.e. upvoted the campaign when it was an idea) were subscribed and received regular email updates on recent activity. This focused email barrage recaptured the attention of participants who had previously lost interest. We then set a deadline by which point all letters had to be finalized for a journalist. Another burst of activity came after an article was published in *The Guardian*.

Stalling may also stem from the inherent struggle to imagine practicable ideas, contrasted with the relative ease with which one can critique (perhaps hoping to refine) existing ideas. The creative and political challenge of identifying meaningful first steps toward a larger campaign can prove daunting to otherwise willing participants.

Friction

Debilitating as it was, stalling was in some ways preferable to *friction: active criticism and negative emotion targeted at a public's progress*. Friction occurred when someone in the community raised issues with the current direction.

Often friction came in the form of a new member or one who had been quiet so far. That person would arrive, realize that they didn't agree with the direction of the effort, and express general disappointment or criticism. Some even threatened to remove their endorsement from the effort unless a specific change was made, and tell their forum members to do so too. This would have broken the cross-forum coalition necessary to make this group's action take on the character of a broader public voice for workers.

While making progress on the academic guidelines, for instance, a Turker who had been previously engaged joined and expressed significant disappointment that the document was not in compliance with Amazon's Terms of Service. The document had provided guidance to requesters who want workers to download software (e.g., screen recording), a practice Amazon forbids. This worker critiqued this and then levied some more general critiques:

"I'm sorry to see the core document get excessively mired in technical detail in what purports to be a high-level document on ethics. I certainly hope this document sees fewer revisions than it will if it ties any of its own legs directly to the five-year-old 'beta test' which Amazon calls 'policy.'"

This message caused a flurry of responses. Here, we worked to separate the worker's general unhappiness from a specific concern, and removed that concern from the public's scope to the member's satisfaction.

Understanding the high stakes involved in these actions for Turkers also sheds light on the reasons why Turkers might strive to stop an action from continuing on its current path. For example, one Turker expressed concerns that the letter writing campaign may attract legislative attention to crowdsourcing, thus threatening the whole system:

"As much as I am behind taking steps to better the plight of all crowdsource workers, might we not want to think through very carefully how loudly we start to shout, lest we end up attracting some attention that we might otherwise wish we would not have attracted."

We addressed this concern by inviting this Turker to join in editing the goals of the campaign and to write his own letter to express his concerns.

Friction was typified by general criticism of an action without constructive suggestions to move forward, often causing negative emotions among participants. One Turker called this process a "circular firing squad of infighting." Kraut [24] suggests that these conflicts stem from a number of design characteristics inherent to the Internet. For example asynchronous communication tends to exacerbate conflicts and, resulting in flaming conversations [6].

From Stalling to Friction and Back Again

Stalling and friction are linked: addressing one can cause the other. We argue that these twin pitfalls are inherent challenges facing publics that act. Friction begets stalling. On Dynamo, movements would stall if participants faced or even feared having to face friction. Beyer [4] argues that the fear of drawing criticism and harming one's reputation is a deterrent to taking action in interpersonal settings. Taking action to avoid stalling will then beget friction. Sometimes a decision for the sake of forward progress would generate new sources of tension. For example, in an effort to move past one stalling debate, we suggested removing the whole section that was causing tension. This resulted in disagreement from the author of that content, which then had to be addressed.

An effort thus faces two likely causes of failure: either it loses its energy and stops; or it has energy and activity, but the activity is not pushing it in a constructive path. In the next section we will further expand on our experience dealing with these difficulties and describe the kinds of structured labor that went into supporting publics that act.

The Labor of Action: Overcoming Stalling and Friction

When actions on Dynamo faced stalling or friction, we stretched beyond code design and maintenance to perform the kinds of labor needed to preserve the kinetic energy of the movement. We call this *the labor of action*, and in this section we detail the lessons we learned from our involvement. We believe that these mechanisms can be replicated to catalyze action in other online communities. As we will argue, achieving *trust as actors* is necessary for any member who takes on these roles. We describe each mechanism in turn.

***Debates with deadlines:* set deadlines for discussions so participants know when to gear towards consensus.**

One case of friction involved two Turkers disagreeing about the paragraph in the guidelines about whether requesters could ask workers to download software. Their disagreement quickly derailed the discussion about the guidelines and turned into a heated debate that evoked strong, negative emotions. We worked with these Turkers to set a deadline to reach consensus over the issue.

"We've spent so much time and energy on this, we need a last effort to reach consensus [...] We need your help for that to happen. Do you think setting a deadline would help?" – [Dynamo team]

"I do agree we should wrap things up soon, if possible without unnecessary sacrifices." – A Turker

Our role in situations such as this one was to suggest a deadline, giving debates a reason to find common ground. Members of the community could debate the date. However, people agreed that debates should respect the deadline. This prompted participants to aim at convergence and come up with concrete suggestions for moving forward.

***Act and undo:* Take action, but leave space for objections and undo if necessary.**

When actions on Dynamo threatened to stall, we personally created forward movement. This effort variously involved creating early drafts of necessary content or simply making a decision. These actions restored a sense of forward momentum and of an active campaign. We accompanied these offers with invitations to ask us to undo.

For example, as we approached the deadline for writing the academic guidelines, one section, "What to do in case of violations", was left untouched. Our team took action by drafting three emails that Turkers could use as templates to contact requesters in order to: notify them of the guidelines and how they are violating them, notify them of next steps, and finally contact IRBs if the problem persisted. Our action started a heated debate. Some Turkers were angry that our framing of this section was restricting, one Turker who led the authoring of the guidelines noted: "*the purpose of Dynamo is/should be to add to the rights/recourse of Turkers, not to limit/replace them.*" However, this action got the effort moving: we backed off on claims that caused

friction to (as one participant described it) give "*the power back to the original actor.*"

Stating that we were open to undoing our work proved very important. In one case a member of the team made edits to the guidelines. Wiki software has perceived affordances that make it easy to revert changes, so she did not announce the fact that she was open to reverting the changes. A Turker expressed dissatisfaction, but was hesitant to make edits to the Wiki, out of fear of "stepping on toes":

"I find the revision unsatisfactory in several ways, but since I have no idea why she did it and don't want to step on toes, I am hesitant to re-revise..."

Once the editor re-established the availability of undo, the effort made progress again.

***Produce Hope:* Portray a tangible and achievable image of success.**

Researchers consider achieving a *perception of success* among social movement participants to be crucial to their active participation [15]. We similarly found actions on Dynamo stalling often because too few people believed in the possibility of success. In these cases, we worked with organizers to portray an image of success that was both valuable and achievable. For example, we made arrangements for the guidelines for academic requesters to be published in a major academic blog. This became an image that Turkers felt was worthy to work towards.

Achieving smaller steps of a larger goal is another way to portray success. For example, a Turker expressed doubts about whether the letter writing campaign would receive attention. An organizer of the campaign responded: "*Two of us have already emailed and received personal replies, I even got action on what I asked for. It works.*" This created a more tangible image of success for the whole campaign.

***Reflect and Propose:* When friction happens, reflect arguments and make concrete proposals to address them.**

On Dynamo, when members created friction, we aimed to diffuse the negative impact on community motivation. We first reflected back to users our best effort at understanding their criticism. We then proposed courses of action that might address the concerns expressed. In some cases, Turkers accepted our proposals. In others, they dismissed our suggestions as inadequate; nevertheless, they were galvanized to find other concrete solutions that they preferred.

In these cases, we reflected the discourse and also offered proposed distillations of the debate that could be addressed with a simple yes or no. In other words, by focusing and simplifying the discussion we prompted participants to step back and reflect on their arguments while articulating their stance. In our experience, this kept discussions productive and encouraged participants to think about the future they would like to see, as well as concrete steps to achieve it.

Accomplishing Trust as Actors

In order for each of our aforementioned actions to be effective, Turkers had to trust that we would act neutrally, fairly, and predictably, and we had to maintain that trust. We worked towards this by attending to people's responses and addressing critique. For example, Turkers grew to trust the first author as the Dynamo Wiki's system admin. She spent significant time talking with Turkers, exchanging ideas, and admitting error. With this trust built, she became the only user who could make changes to "locked" pages. We in turn made the circumstances for edits completely transparent. We also announced edits beforehand, leaving enough time for objections, and paralleling the previously discussed point of being able to "act and undo".

DISCUSSION: TACTICAL PUBLICS AND THE LABOR THAT MAKES THEM WORK

This paper attends to the challenges of *publics that act*, revealing the emotional and sense-making labor of facilitating these collectives – ones we name *tactical publics*. Like the publics articulated by DiSalvo's and Le Dantec's works [9, 27], Turkers discussed and analyzed the issues affecting them, from the socio-technical to the policy level. But converting public deliberation into tactical actions proved far more difficult, particularly online.

We name these collective forms *tactical publics* and have shown the labor and software that supported their formation. Tactical publics congregate around collectively pursued *actions*. These publics are often entangled with discursive publics, but also require distinct kinds of labor, structuring, and organizing. Through our research, we have identified stalling and friction as two of the major challenges that tactical publics face. However, much more work is needed to better understand these publics, their challenges, and tactics to support them.

On Dynamo, the labor we performed — debates with deadlines, act and undo, the production of hope, reflect and propose — could not have been written into software. They required contextual knowledge of the members of the public and their goals, as well as familiarity with their environment and its limitations. We used structured scripts to avoid stalling and friction, and we instantiated those scripts as each situation dictated. We inserted ourselves into their world and took actions that could have potentially harmed them. For this to be possible, those publics had to identify us as trustworthy and accountable actors.

This is an extension of the role that moderators play in conversational online forums. Moderators maintain norms to produce cohesion through acts like organizing threads or maintaining access levels. While Dynamo required some similar organization, its work also required cultivating inclusive, future-oriented propositions. This required particular kinds of emotional, cognitive labor. When critique was lodged, we undertook emotional labor of remedying friction, the critical labor of reflecting back, and the blame bearing labor of acting with an invitation to undo.

The structured labor of making tactical publics work online is not unique to our project, but this paper seeks to amplify and name it. We see hints of it elsewhere in social computing research and existing, real-world systems. Kriplean et al.'s integration of librarian factcheckers into a deliberation system offers a second intriguing data point [25]. Luther and Bruckman also identify leadership opportunities and challenges in creative collaborations online [29]. These forms of labor give lie to the idea that social software itself can produce the conditions for change. As a research community, we can begin to recognize the labors that combine with software to bring about change and ask how we can better support those labors.

A focus on the "human infrastructure" [28] that made Dynamo work troubles the passion for scalability we see in much computing research, including the push for scalable human labor that propels systems like Amazon Mechanical Turk (see [20:7-9]). In a field that seeks scalable, sometimes massive social change, we also suggest that some labors, by necessity, do not scale. With Dynamo, we tried to create the conditions by which Turkers could assert their own visions for "The Future of Crowd Work" [23]. If one views Mechanical Turk, requesters, HCI, and mainstream media portrayals of AMT collectively as a dominant public, then Dynamo, Turkopticon, and worker forums would represent counterpublics formed to articulate alternatives to wider public discourses [1]. This effort cannot itself be crowdsourced. Counterpublics require shields and temporary suspension of mainstream norms of discourse (e.g. [13]) to form.

CONCLUSION

Human-computer interaction envisions how design and technology can affect positive change in the world. To this end, one of its goals must be to support groups who come together to act via computer-supported collective action [36]. We focus on one such group, distributed workers on the Amazon Mechanical Turk marketplace. Over the course of a year, we talked, listened, and reconsidered the relationships Turkers have with each other, with us, and with collective action. The result was Dynamo, a platform for the creation of Turker publics that aim for action and change. We identified stalling and friction as twin failures that plague publics that act. We detail a set of structured behaviors that helped keep these tactical publics from dissipating, and look ahead to opportunities to better support such collectives.

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