Turker Tales: Integrating Tangential Play into Crowd Work

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ABSTRACT
While past work has admirably supported crowd workers in improving their work performance, we argue that there is also value in designing for enjoyment untied from work outcomes—what we call "tangential play." To this end, we present Turker Tales, a Google Chrome extension that uses tangential play to encourage crowd workers to write, share, and view short tales as a side activity to their main job on Amazon Mechanical Turk (MTurk). Turker Tales introduces a layer of playful narrativization atop typical crowd work tasks in order to alter workers' experiences of those tasks without aiming to improve work efficiency or quality. Using speed-dating (N=12) and a pilot test (N=150) to inform our design, we deployed Turker Tales over one week with 171 participants, receiving 1,096 tales and 1,527 ratings of those tales. We found that our system of tangential play brought to light underlying conflicts (such as unfair working conditions), and provided a space for participants to reveal aspects of themselves and their shared experiences. Through Turker Tales, we critically reflect on the roles of researchers, designers, and requesters in crowd work, and the ethics of incorporating play into crowd work, and consider the implications of the paradigm we introduce both as a method of research through design and as a direction for design to support crowd workers.

Author Keywords
crowd work, Amazon Mechanical Turk, play, qualitative, storytelling, MTurk, Turkers, Chrome extension, plug-in, research through design

CCS Concepts
•**Human-centered computing** → **Human computer interaction (HCI);**

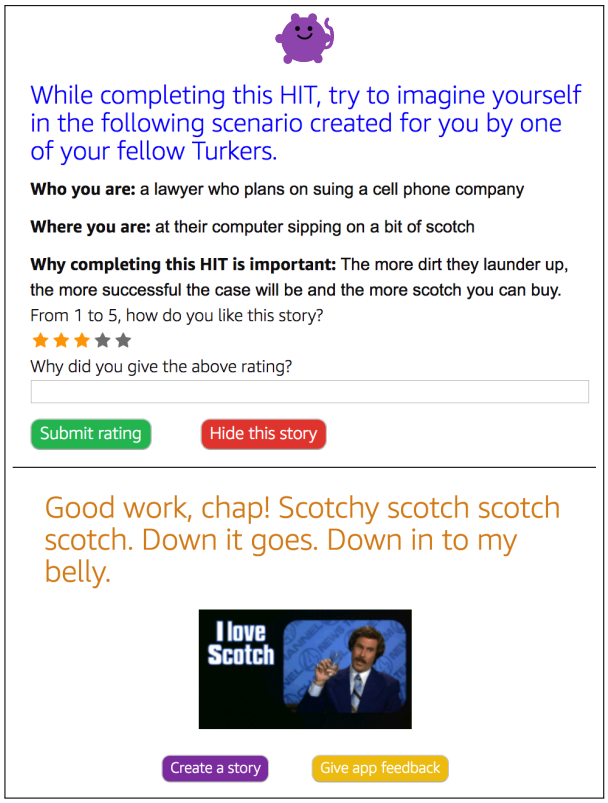

Figure 1. Turker Tales interface: Top panel shows a Turker-created scenario another Turker could see during a categorization HIT. Lower panel shows the message and GIF they see upon completing the HIT.

INTRODUCTION
In brick-and-mortar workplace settings, leadership often implements structures and activities to engage workers in non-work activities and build community [94]. Examples include office birthday parties, happy hours, free donuts on Thursdays, casual Fridays, "break rooms" designed to foster informal workplace social interactions, such as "water cooler banter" [34], and the ubiquitous ping-pong tables and game rooms of tech companies. When workers voluntarily participate in the activities, play and leisure at work have been shown to improve general employee happiness and well-being, including increasing positive affect and general job satisfaction, and decreasing the occurrence of emotional disturbances [75, 69, 58, 80]. Our existing models of work settings include notions and norms of structured, leadership-supported play and enjoyment.

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By contrast, the tools we have developed as a research community for crowd workers, even those that incorporate elements of play, tend to focus on improving efficiency and productivity, building work-related skills, and addressing other "serious work matters" [17, 66, 63, 21]. Some crowd workers might choose to imbue play and entertainment throughout their workday in a variety of different forms, or engage in grassroots activities like forums that support varying levels of social connection [96, 62, 47]. However, as in other work settings, employers can greatly impact organizational culture and employees' overall work satisfaction through their management strategies (which can include mechanisms of play) [2]. Especially in light of broader cultural norms that may encourage overworking [11, 12], workers may sometimes require additional support in achieving work-life balance, realizing ways in which their own self-worth extends beyond their work performance or roles, and connecting to other people at work.

Research on teleworking has found that remote workers may be more prone to stress and depression [92], suggesting that crowd workers may need additional support structures and interventions. For example, survey research on crowd workers has suggested that at least a subset of crowd workers may suffer from depression and other mental health issues [59]. Moreover, crowd work platforms such as Amazon Mechanical Turk perpetuate unfair working conditions, wherein workers do not receive proper compensation for their work and have few opportunities to advocate for themselves (e.g. [50, 41, 53]). Incorporating play into crowd work does not solve such injustices, but, as we will show, could help surface workers' critical reflections on the ethics of crowd work, and proffers novel paths through which we can redesign crowd work.

As many academic researchers employ crowd workers or make recommendations as to how to structure crowd work, we are essentially part of the distributed management team for crowd work. As such, we might be inclined to study and design for crowd work in domains such as worker productivity, skill levels, and working conditions, all of which a solid body of research has explored, e.g. [14, 82, 29, 66, 53, 3]. In contrast to these prior approaches, we draw from literature in play theory to consider how designing for *tangential play* in crowd work can provide insights into the crowd work context and direct us towards new ways of designing to support crowd workers. We refer to this play as "tangential" because it is not structured with a goal of supporting work productivity or efficiency. Much like the break room setting in an office [80], the goal of play here is decoupled from the productive tasks. Given that storytelling is a natural inclination of humans, and a primary way in which we process the world, embed our lives with meaning, and connect with one another [56, 22, 20, 27], we choose to ground our approach specifically in narrative play. To this end, using primarily qualitative approaches, we developed and studied a system called Turker Tales to explore how crowd workers respond to embedded play and anonymous social interactions via storytelling as part of their daily crowd work tasks.

To understand the design space and validate user needs, we employed the user research method of speed dating [23] (N=12) with Turkers, and performed a pilot test of a storytelling play concept using receipt transcription HITs (N=150). Based on our insights, we developed Turker Tales, a Google Chrome extension that allows workers on MTurk to create and share short tales with one another while completing HITs. We released Turker Tales in a one-week field deployment (N=171), collecting 1,096 tales and 1,527 ratings. We also performed analyses of the story content, both in the pilot and the field deployments, and gained insights into how incorporating play into crowd work through Turker Tales allowed workers to share aspects of themselves with one another while maintaining anonymity, share critiques of working conditions on MTurk, and communicate about cultural and political phenomena. The insights revealed through Turker Tales allow us to explore tensions in the crowd work design space, including researchers' responsibilities as part of the crowd work system, and the ethics of designing for paid or unpaid play on crowd work platforms.

RELATED WORK

We situate Turker Tales amid work on (a) crowd work conditions and support, (b) play theory, and (c) play at work and storytelling.

Crowd Work Conditions and Support

Crowd work has been criticized for its low wages, which often fall well below minimum wages in the U.S., especially when taking into account the fact that unpaid elements, such as search time, are part and parcel of crowd work [50, 6, 79]. Although crowd work may offer autonomy and flexibility, it also places individuals at risk of exploitation [24, 13], with crowd work labeled as "invisible work" [67, 87, 52, 41, 53] in that workers often have inadequate support to advocate for their rights, and requesters may dehumanize crowd workers by viewing them as "cogs in the wheel" [61], rather than individual, visible employees. Applying Marxist theories of work to crowd work suggests that alienation from the outcomes of the work and other workers [49] could lead to feelings of meaningless or worthlessness [46]. Although there is little research on mental health in crowd work, research on telework and preliminary findings on crowd work suggest that crowd workers could be at risk for stress and depression [92, 59].

In order to support crowd workers, conscientious scholars have designed and implemented successful ways to increase participation and/or retention [33, 10, 98, 18], increase pay and productivity [83, 57, 14, 82, 81], improve the quality of work produced [29, 71, 64] and improve learning and skill-building [28, 42, 17, 66]. Crowd workers have self-organized through forums to improve work practices, increase income, find new HITs, and provide moral support and encouragement to one another [96, 62, 47]. Building off research from community empowerment [39, 86, 95], studies have helped bring light to and support crowd workers in actions to self-organize and advocate for their rights as workers [53, 54, 52, 5, 19].

Relatively little work, however, has considered support for crowd workers in ways that are untied from work efficiency, quality, and earnings. Some interesting interventions have embarked on this territory, using methods like play and curiosity to engage crowd workers [63, 21, 31], or focusing on more

holistic social support [30], but we note that these research projects remain focused on work quality and/or efficiency as the end goals. In our work, we seek to understand how engaging in play that is tangential in that it does not seek to improve workers' performance or efficiency beyond the task at hand might reveal the nuances of the crowd work context.

Play Theory

To orient our work, we focus on the seminal play theory work of Sicart, Huizinga and Sutton-Smith, as well as gamification-specific work from DeWinter et al. Miguel Sicart spoke of play as disruptive and revealing of context, explaining, "In disrupting the normal state of affairs by being playful, we can go beyond fun when we appropriate a context with the intention of playing with and within it. And in that move, we reveal the inner working of the context that we inhabit" as well as "the seams of behaviors, technologies or situations that we take for granted" [84]. He speaks of playfulness as carnivalesque in that it is "an opening toward critique and satire, toward freedom in the context of mundane activities" [84]. Sicart defines play spaces as not limited to games, but also inclusive of contexts such as lunch breaks and other "openings in time and space where play becomes possible" [84]. Similarly, play theorist Huizinga, most famous for his writings on the "magic circle," also spoke of play as an interlude in our daily lives [55]. The idea of play as both disruptively revealing of a context, and integrated into a context guided our design of Turker Tales. With Turker Tales, we wanted to learn how designing and deploying a system of play could provide insights into the crowd work context precisely by appropriating and reframing that context, thereby positioning play as a tool in our design toolbox to better understand a digital context.

At the same time, we also considered in what ways tangential play might be a useful support for crowd workers, and here we find it important to situate our work among discussions of gamification as they relate to capitalism. DeWinter et al. have criticized the widespread enthusiasm for gamification as co-opting play in the service of capitalism and increasing capitalist productivity [26]. With our development of Turker Tales, we thus seek to answer DeWinter et al.'s call for an approach that is "less game and more play." Of course, Turker Tales does not fully escape production or capitalism; after all, we did pay participants to test out Turker Tales, and through our design and deployment of a playful system, produced research insights. However, we sought to design for *tangential* play; although play in Turker Tales takes place within and among the rules and values of a capitalist system, the form of play in Turker Tales (as we will show) also allows participants to call into question and comment on that capitalist context. In detailing what he terms the seven rhetorics of play, or ideologies that have been used to explain different forms of play, Sutton-Smith describes one of these as the "rhetorics of identity." In so doing, he speaks of play as being about the "ontology of being a player and the dream that that sustains" and as existing separate from improving skills for non-play functions or creating other forms of competence [90]. Drawing inspiration from Sutton-Smith's discussion of the rhetorics of identity, we purposefully incorporated identity-based play in Turker Tales as a further way to shift the focus away from gamification and onto the individual, thereby offering, as DeWinter et al. calls for, "a game-like space to provide the scaffolding for play" rather than "a game-like space to train employees" [26].

Play at Work and Storytelling

In a culture of overwork [11, 12], and amid the "gradual erosion" of separate work-play spheres [43], those with more flexible jobs such as crowd work are potentially more at risk for overworking [9, 51, 65]. Workers may, of their own accord, use play to recuperate, gain additional social support, or cope with work-related stress [78, 25], and experiencing fun at work, whether self- or management-directed, is linked to less emotional exhaustion and greater job satisfaction [58, 69, 94]. In traditional office settings, management can greatly impact worker attitudes and satisfaction rates [2]. When management-supported "play at work" initiatives are paternalistic— "mandatory fun"— workers may experience cynicism and distrust [37, 85, 38], but when employees voluntarily consent to workplace fun and leisure, it can increase positive affect and satisfaction [70, 75, 80, 74, 35, 93, 77].

Play can take a variety of different forms; in our work with Turker Tales, we choose to center on storytelling as a play mechanism given that storytelling is universal and fundamental to our growth, maturation, and ways of perceiving and experiencing [56, 22, 89, 91, 72, 20, 27], and can serve as a means of increasing social connection and feelings of belongingness, [60, 40], as well as provide therapeutic benefits that might be especially applicable to stressful work situations [8, 15, 16, 73]. While narrative-centered play is only one possible form of tangential play, we posit that narrative play proffers a means to infuse meaning into completing tasks that are often de-contextualized, and whose ultimate purposes and outcomes are occluded from workers. Narrative, character-driven play also lends itself well to leveraging Sutton-Smith's "rhetorics of identity" and encouraging individual self-expression.

BACKGROUND RESEARCH THROUGH DESIGN

We used speed dating [23], a design method that lies between sketching and prototyping, and allows for rapid exploration of design concepts and their contextual dimensions, to better understand whether our design ideas fit MTurkers' needs, and where we might have inaccurate understandings and misplaced assumptions. We recruited 12 participants on MTurk to participate in a storyboarding feedback session, conducted over Skype via either voice or video chat (per the participant's choice). Each session, which we audio-recorded and later transcribed, lasted from 16-40 minutes, and we compensated each participant $8 (average of $21.65/hour). Here, and in all stages of our study when working with participants, we required that participants be 18 years or older and complete an IRB-approved online consent form.

We presented participants with six different storyboard scenarios to explore our design concepts; four dealt with different dimensions of a playful intervention, and two explored public-facing profiles and anonymity. We wanted to better understand the extent to which crowd workers value anonymity, which we conjectured may benefit requesters more than workers, allowing requesters to maintain workers as faceless masses

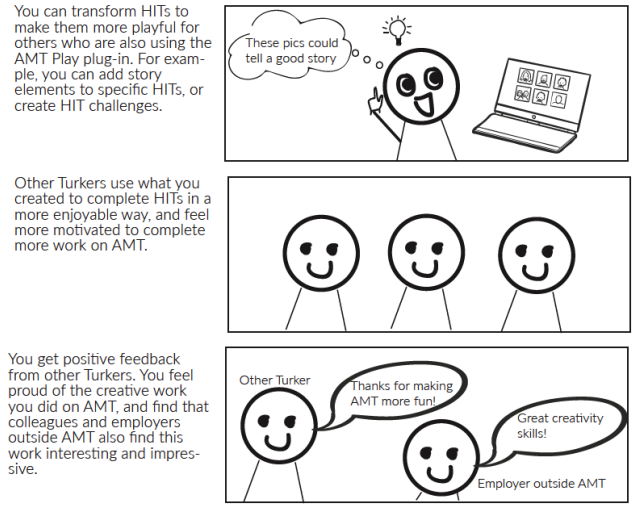

Figure 2. A storyboard discussion prompt for speed-dating.

rather than individual employees [54]. For example, we asked participants to imagine different scenarios in which they might automatically share their crowd work accomplishments or activity with requesters and/or other Turkers, and probed around how much they would be willing to reveal about their personal identity or career path in such scenarios. Additionally, we asked participants to imagine themselves in different narrative and non-narrative play scenarios in order to assess the potential value of play, including storytelling play in crowd work, as a mechanism to escape from daily realities and improve overall user experiences while using MTurk [8, 15, 16, 73].

In keeping with the goals of speed dating to understand the contextual space— validating needs rather than design concepts— we displayed potential scenarios, but not actual user interfaces, and directly incorporated and probed around our original understandings. We conducted a thinkaloud with each scenario, asking participants to consider whether they could see themselves in the story, and what aspects resonated or didn't resonate. See Figure 2 for the storyboard scenario that most closely relates to the further steps we did. We qualitatively annotated the transcripts using inductive, iterative coding to extract key takeaways.

We found that our assumptions about anonymity on MTurk were off-target; participants highly valued their anonymity and privacy on MTurk, and did not want to engage in any activities that displayed their accomplishments on MTurk. The value crowd workers place on anonymity is underscored by the fact that our speed dating sessions were conducted over Skype, thereby revealing participants' voices and/or faces. As such, we may already have been speaking with a subset of Turkers that could be relatively less concerned about anonymity, and yet these participants still held strong opinions about maintaining anonymity. Explaining that the structure of MTurk lends itself to certain "dog-eat-dog" mentalities, participants said they didn't want to risk exposing information to other Turkers that might help them take over their slots in well-paying HITs. Even forums may not be entirely transparent or altruistic, as many forum members safeguard information about especially desirable HITs. Rather than seeing other Turkers as familiar colleagues or peers, it appears that some Turkers may view them more as competition. For example, p10 lamented how so many Turkers use scripts to grab HITs, exclaiming, "I don't know how they grab the stuff so fast, I really don't!" She said that although many Turkers boast in the forums about bonuses or large volumes of completed HITs, they don't reveal "who they did the work for, and how they got the work." This suggests that gamified approaches hinging on social comparison and rivalry may not be ideal for MTurk settings, as competition may already be a divisive factor in the community.

Meanwhile, our four play scenarios confirmed that Turkers may be open to "play-at-crowd-work." For all our participants, feelings of boredom resonated; we discovered that "dead time," or periods in which well-paying or otherwise interesting HITs become few and far between, can be an issue. For example, p02 said he would "without a doubt" be interested in a storytelling based plug-in, saying, "Sometimes on the weekends, it's kinda slow. And I'll be trying to get on sometimes, and they'll have some pretty bad jobs, that I kinda just do because I wanna make a couple of dollars." Moreover, when we pushed on participants' boundaries by asking whether they could still see themselves engaging if the play actually *decreased* their efficiency, participants often answered ambiguously, not ruling it out entirely, but rather, indicating that they make tradeoffs between enjoyment and efficiency. As p01 explained, "Depends how much longer, because I am very calculative with my time... If it floated down too much, to where you'd make $6 an hour, I wouldn't do it." In this way, for the Turkers we spoke to, efficiency is a relative, not an absolute, concern.

Social connection also emerged as a key desire. Several participants initially responded that they could not picture themselves engaging in play on MTurk because they preferred to treat "work as work." However, they changed their tune when we re-framed play artifacts as being created and shared by other crowd workers. For example, p06 initially said she preferred to work only, without any element of play incorporated. But then when we prompted her to consider sharing the tales she had created with others, she became very interested, and said she didn't care about the compensation, explaining, "It doesn't really matter... To put something out for somebody else; I think it'd be fun." She said she had even been considering posting as a requester (though wasn't sure about the costs) because she wanted to learn more about other Turkers and whether they had shared experiences outside of Turking.

In sum, through speed dating, we learned that crowd workers value anonymity, may be wary of sharing information with other crowd workers, make tradeoffs between earnings and enjoyment (especially during dead time), and value social connections with other crowd workers. These findings informed our subsequent design of Turker Tales, leading us to choose a storytelling play scenario and to allow for social connections while simultaneously maintaining worker anonymity.

METHODS: PILOT TEST, DESIGN, AND DEPLOYMENT

Pilot Testing Method

We next moved forward with a pilot study (N=150) of a storytelling application concept on MTurk using a mock batch of receipt transcription HITs (receipts obtained from [32]), which are widely available on MTurk and often low-paying (most paying pennies per receipt transcription), and thereby potentially a task workers might encounter during "dead time." We instructed participants to provide another (hypothetical) Turker completing the same set of HITs with a character, a reason for why they are doing the HITs, and closing "success" and "fail" messages. We paid participants a base compensation of $3 for participating in the approximately 10-minute study, and a bonus payment of $0.04 for each receipt transcription they completed (approximate hourly wage of $18, though self-reports on sites like TurkerView were higher). We analyzed the results of the pilot, which we will present in tandem with the full deployment results, using a primarily qualitative approach of open, inductive, iterative coding; we conducted any statistical analyses in R. As will be discussed in the results section, participant feedback from the pilot testing helped us refine and revise the design for the actual system.

Design of Turker Tales

After refining and iterating on the design, we next developed a Google Chrome Extension called Turker Tales that allows crowd workers on MTurk to see short scenarios or stories (tales) that other Turkers have created while doing the same or similar HITs, as well as to compose and share their own tales. Images of the interface can be seen in Figure 3. To store data on the backend, we used Google's Firebase Firestore [45]. Below, we highlight some of the main principles that guided our plug-in's design.

We maintained the general storytelling structure, but modified the prompts for brevity, and removed the dual nature of the closing message options ("success" versus "fail"). Based off participant feedback, we also included a more playful, visual feature so that the closing message would be automatically represented to users as a GIF (using the giphy API) after they had completed a HIT. We used a smiling, playful purple creature with a tail ("tale") as the extension's icon.

In Turker Tales, Turkers submit stories anonymously shared with other Turkers doing the same or similar HITs, and whenever a Turker with the extension is working on a HIT, if there are any stories associated with that HIT, they will have the option to click to see a story. Turkers may submit their HIT-associated stories either while the HIT is in progress, or directly after the HIT has been submitted. We maintained privacy where possible by, for example, using a content script in the extension, meaning we only accessed users' information when they were directly working on HITs. In keeping with general UI heuristics, we aimed to minimize distractions. For example, even if a story is available for view, if the participant does not choose to click on it, then we do not show them a closing message or a GIF upon completing the HIT, and all elements of the interface appear directly at the top of the current window rather than as a potentially distracting pop-up.

We took a loose, simplistic approach to story-HIT matching to maximize the likelihood of Turkers seeing a story, first prioritizing HIT match, then requester match (as many requesters may post HITs that are quite similar to one another), and lastly, using keyword match from titles (we used Python's Natural Language Toolkit to assist in removing stopwords and lemmatizing text). We gave highest priority to HIT (or HIT batch) match, and lowest priority to keyword match. If there was at least one story in a given group for a HIT, then that story would be displayed to participants; if more than one matched, a story was chosen at random (again, first choosing among HIT-matches, where available). To give an example from our dataset, one participant wrote a story about a magician while completing an audio transcription task posted by Requester X (maintaining requester anonymity) to determine whether the speaker is saying "Yanny" or "Laurel," a viral auditory illusion that has also been studied academically [1, 76]. Other users of Turker Tales that happened to complete the same Yanny or Laurel HIT could see this story. In addition, other HITs posted by Requester X, which are typically audio transcription HITs, could also be matched with this story. Lastly, workers completing other audio transcription HITs not posted by Requester X might also be exposed to this story through the keyword matching process.

Because the newest users of the extension would be unable to see stories created by others, we also seeded the application with 93 stories selected at random from our pilot intervention. For the seed stories, we manually assigned keywords such as "receipt" and "transcription." Because this would mean that only those doing receipt transcription HITs (or similar) would see the seed stories, we slightly modified some stories to make them more generic in nature, and assigned them more generic keywords such as "categorize" and "pay." We also allowed feedback mechanisms, both for the stories themselves and the application, overall. For example, participants could rate the quality of any stories they viewed on MTurk on a scale from 0 to 5, and submit a comment about the story.

Deployment and Analysis Methods

We deployed Turker Tales by posting a HIT on MTurk, informing participants that they must use Google Chrome in order to qualify for the HIT and be willing to keep the extension installed for one week; 171 participated in our study by downloading Turker Tales. We paid participants $1 for downloading the extension, and bonuses of $0.10 for each story they submitted and $0.05 for each story rating they submitted, up to a maximum of $10. With approximate download times of 3 minutes, this translates to a roughly $20 hourly wage, though, as before, self-reports on sites like turkerhub were higher. Note that we made it clear that bonus activities were optional to receive the base payment. Originally framing Turker Tales as a precursor of a freely available Chrome Extension, we reasoned that in a true-in-the-wild experiment, participants would not receive any payment at all, but we still wanted to provide some compensation in keeping with the expectations of the MTurk platform. (Note: the ethics and tensions around such unpaid play are further explored in the Discussion section). We encouraged feedback via the extension, but did not explicitly compensate for feedback.

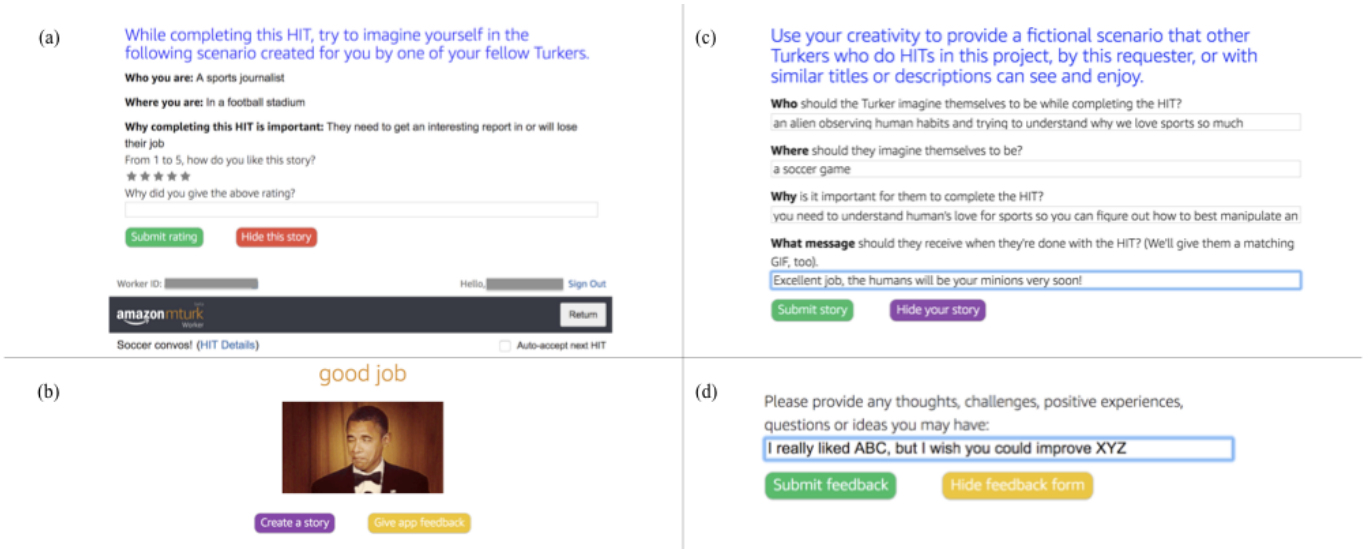

Figure 3. Turker Tales interface. In (a), we see the screen for viewing and rating a tale. As with all aspects of the interface, this appears before all other elements in the HTML DOM; (b) shows a sample GIF received after completing a HIT; (c) is used to submit a tale; (d) is used to provide general feedback on the plug-in.

We collected data through our application for one week. To analyze the results, we used Google Cloud services to help transfer the data from Google Firestore to Google BigQuery [44]. We used open, iterative coding (in Excel) to classify the content in both the pilot and deployment stories. For the stories from Turker Tale's deployment, we also used feature extraction in LightSide [68] based on unigrams and lemmatization (word-stemming), and ignoring stopwords and punctuation, to help with initial categories and groupings, and then iteratively and manually coded themes from there. In categorizing tales, we ultimately found qualitative analyses to be more informative than topic modeling approaches such Latent Dirichlet Allocation [7] or biterm topic modeling [97], and will thus focus on presenting our qualitative results in what follows.

RESULTS OF PILOT AND FIELD DEPLOYMENTS

Overview of Engagement

In the one-week period in which we officially deployed Turker Tales, we received a total of 1,096 stories produced by 110 participants, 1,527 story ratings from 113 participants. A total of 132 participants "lurked" on the extension in some capacity by, at the very least, clicking on "See story" when the option was available. On average, active participants submitted 9.96 stories, with a standard error of 1.45, a median of 3, a mode of 1, and a max of 62. Additionally, 32 participants voluntarily provided 56 notes of feedback on the extension.

We manually labeled all the HITs based off project titles, and found that 66% (728) of stories in our field deployment were submitted while participating in surveys, quizzes, or studies; 10.8% (118) in reading or writing tasks (such as summarizing, describing, and reading comprehension); 6.8% (75) dealt with stories or games; and 6.6% (72) involved tagging, labeling, categorizing, or transcribing. Although we initially conceptualized Turker Tales to be used for more repetitive, "boring" tasks, such as receipt transcription, we instead found that participants were heavily engaged in reading, writing, creativity-oriented, and higher-level processing tasks. It is likely that Turker Tales, given that it features playful interactions, involves reading and writing, and is part of a research project, appealed more to Turkers that choose similar HITs on MTurk. The difference in tasks chosen, as we will discuss, may also have impacted the content and tone of stories submitted in the field deployment (primarily surveys and reading/writing) versus the pilot (receipt transcription only).

Stories submitted in the pilot were longer than those from the field deployment, with pilot stories averaging more than three times the length of field stories, at 369.7 versus 110.8 characters. This difference was statistically significant as measured by a Welch 2-sample t-test, with a p-value of 0.00. It could be— as one participant suggested in feedback— that our pilot participants were generously compensated for submitting their stories and therefore spent more time and effort on them ($3 for participating in the study), whereas our deployment participants were submitting "10-cent stories." However, longer stories aren't necessarily more engaging, nor are they practical for types of play that can be done during the work day. Averages for stories in general were above the threshold of neutral, indicating general enjoyment of Turker Tales. Moreover, on average, the shorter stories produced in Turker Tales received higher ratings than the longer pilot study stories we used to seed Turker Tales, with field stories having an average rating of 3.6, and pilot stories, an average of 3.3 (though this difference is not statistically significant). Thus, if anything, participants appeared to prefer the shorter stories slightly more, giving more encouragement to the scalability and viability of play through Turker Tales.

We note that 'spamming' Turker Tales (e.g., by typing in nonsense text) could have been profitable, as we did not place any stipulations on the content of stories submitted. Instead (as our topic categories and story examples show, see Table 1), workers engaged playfully even though their earnings were not

contingent on playfulness or creativity. In addition, 32 people in our field deployment voluntarily provided uncompensated feedback on Turker Tales via the built-in feedback form (56 comments). Of these, 17/32 people (24 comments) showed direct enjoyment and flow, e.g. "I really like this. It makes you think and laugh alot [sic]" and "That was actually kind of cathartic." Further, 12 people (17 comments) offered ways to improve Turker Tales, e.g. "a way to track how many stories you have written and rated." Only two participants directly criticized the "play at work" concept behind Turker Tales as impractical and unwanted, e.g., "Nobody has time for this." In addition, 21 workers enjoyed the extension so much as to remain active on the extension in the three weeks after the study period ended, contributing over 300 additional stories. This suggests that at least for a subset of workers, the concept of Turker Tales holds appeal as a purely voluntary playful intervention.

The top eight most prevalent themes in the field deployment of Turker Tales are shown in Table 1. As shown, critiques of MTurk working conditions weren't as prevalent in the field as in the pilot, and superhero/savior themes were rarer in the field than the pilot. Meanwhile, politics did not arise in the pilot at all, whereas the field deployment featured 13 separate references to Donald Trump alone. In the following discussion of emergent dynamics in Turker Tales, all examples of tales come from the field deployment, unless otherwise stated.

Peeks into Turkers' Personalities, Thoughts, and Interests

Stories grounded in the everyday were quite common, as Table 1 attests. Whether it was a "a middle aged man who is on his lunch break from his engineering job," "a dad trying to get his daughter to wash her own dishes," "a person in their underwear finishing an episode on the couch," or "a senior citizen at home massaging [their] knee with a cold compress," it was at times difficult to ascertain to what extent the characters were autobiographical. By sharing aspects of everyday life and work, some participants may have shared aspects of their lived realities. This may have held true for more personal or revealing stories, such as a "heartbroken divorcee//On facebook checking on their ex." Likewise, the person who submitted, "Depressed male//In the bedroom eating popcorns//So as to understand their depression//(message): It's so easy to be under stress these days" might have personal experience with depression.

A small subset of stories in Turker Tales (8) waxed reflective as they reached the closing message, indicating the train of thought or belief held by the Turker-creator. For example, a story about a fisherman hauling in shellfish ended with, "Yes, he may be imperfect but we humans are all in this together and no one is perfect. Keep improving every day." Similarly, a short tale about a commercial pilot "waiting on the runway for take off instructions" ended with, "How different we all are even though we may come from the same place; our experiences are all unique and rich in scope." These short words of wisdom provided insight into the mindset of Turkers.

Many stories also incorporated fantasy and absurdism; this became even more present in the field deployment as compared to the pilot, and we conjecture that the fast-paced nature of the tasks (done while or between completing other HITs) may have encouraged participants to write the first things that came to their minds, leading to more fantastical or surreal scenarios. For example, in addition to the many animal-based stories, we saw quirky examples of objects as characters, including a cup of coffee, a banana, a strawberry, a leaf, a zipper, pizza, and an ice cube. The presence of our purple creature icon ostensibly inspired several purple characters, such as a purple people-eater in a pool of marbles who receives permission to eat, or "a one-eyed, one-horned, flying purple people eater flying above the city," holding a phone and looking to buy "a second eye/horn and a nice salad." Trends of fantasy and surrealism may also have been self-reinforcing; as participants saw absurdist and fantasy tales, they may have been inspired to create similar scenarios. Regardless, examples of fantasy give small glimpses into Turkers' thoughts, mindsets and creativity. Again, we highlight that the HIT itself did not require creativity or playful engagement as a prequisite for payment; participants voluntarily engaged playfully in Turker Tales.

Criticism of MTurk Working Conditions

In the *MTurk criticism* category, we separated out stories that specifically criticized or satirized either Amazon Mechanical Turk, requesters, or specific HITs. We first note that critique themes were more common in our pilot than in the field deployment, perhaps because we tied the pilot activity to receipt transcriptions. For example, one participant in our pilot study called the Turker "a sucker" who is "locked in their parent's basement desperately trying to crawl out of debt, one underpaid Brelig at a time." Here, the participant refers to John Brelig of the company InfoScout, a requester notorious for posting low-paying receipt transcription HITs and using techniques to get his HITs to show up at the top of the page [4]. For the "success" message for this sarcastic setup, the participant wrote, "Congratulations! You did so well, your mom decided to get you a $5 fill up from KFC instead of the usual storebought tendies [chicken tenders] and has added a bonus to your good boy point fund." By speaking to the (imagined) Turker in a tongue-in-cheek, patronizing tone, this participant makes a political statement: workers with self-respect should not participate in such low-paying HITs. We posit that in our pilot test, many participants assumed that we ourselves were planning to post receipt transcription tasks in the future, and were seeking ways to keep wages low while still retaining workers. In this way, they playfully subverted the (perceived) activity itself by interrupting the flow of power; the activity itself became a way to discourage other (hypothetical) workers from participating in such a low paying HIT rather than a task to increase other workers' enjoyment of the HIT. Whereas in our field deployment of Turker Tales, the extension itself was clearly separate from the intentions of the specific HITs, and participants chose the HITs that most interested them.

Still, 6% (71) of the tales in our field deployment focused on MTurk criticism; this is not a trivial percentage. Several participants used dark comedy to highlight the low wages on MTurk and wide income gap between Amazon leadership and Turkers. One participant told Turkers to, "Pretend you're Jeff Bezos//Sitting in your pile of cash.// You need to make your pile even larger. //(message) Woohoo I'm even richer!" Another worker, taking an unpaid qualification survey, ended their

Theme	Pilot	Field	Example (from field deployment of Turker Tales)
Occupations	21% (31)	30% (324)	"A world famous musician [at] Carnegie Hall" about to receive "the biggest award of their career!"
Cultural/famous references	5% (8)	16% (177)	Annie, who is with MJ [Michael Jackson] "to prove that yes, she is okay." *(song reference)*
Animals	5% (8)	12% (129)	A cat flying in the sky near dinner time, told to "Have a cookie."
Fantasy (not otherwise stated)	0	7% (75)	"The opposite gender in a bathtub full of water. If they don't answer they will forever be changed to the opposite gender."
Everyday	5% (8)	7% (72)	"A call of duty player//On the couch//To get to prestige 10."
(MTurk) Critical narratives	12% (18)	6% (71)	"A masochist//Inside an Iron Maiden// They really enjoy tedious activities that lead to dead surveys.// (message): Sorry pal. Better luck next time."
Political references	0	6% (70)	"Donald Trump//In Russia//Because it will garner him praise and admiration from Putin.//(message): Good job, comrade! You are my #1 puppet!"
Objects	0	5% (69)	A pen who "wants to be chosen even though they are green" and later told,"You're the best pen!"

Table 1. Eight most common themes in the field deployment.

story with a sarcastic, "Congratulations, you earned $0.00!!!" Often, Turking for pennies is wryly linked to basic survival, as in, "A very poor person, scrounging for pennies//Digging through the 'couch' of this survey for pennies //You need those pennies to buy food. //(message) Success, you found $.03!" Similarly, a Turker trying to buy new shoes for their child is sardonically told, "Good job, you have earned 1 cent." References to "slaving away on mturk" further draw parallels between MTurk and slave labor. Another participant encourages other workers to think of themselves as Satan, ruining the results of a survey "just because," which we could also see as a form of rebellion against requesters on MTurk. Other stories from our field deployment do not explicitly refer to MTurk, but implicitly critique MTurk working conditions by highlighting themes of poverty and mistreatment. For example, a story about a sweatshop worker in China that will be beaten and starved if they do not finish the job draws a dark parallel to MTurk work, and a story about a scam artist "in a scamming room to scam everyone out of their time and money" could be a response to unethical, low-paying requesters.

Political and Cultural Communication

Our field deployment of Turker Tales also saw engagement around cultural and political themes, such as stories featuring famous political figures; many of these incorporated humor or absurdism. For example, a North Korean diplomat goes to Disneyland, "because it is necessary for world peace and harmony.//Say no to war" and Russian president Vladimir Putin plays ping pong with Chinese president Xi Jinping at the gym, because "You need to know even presidents are simple humans and they can do what we do." The multiple stories centered around Donald Trump often poked fun, such as a story about Trump's spellchecker who has an important job to do because Trump "can't spell//LOL." While many of these stories were ostensibly unrelated to the HIT's content, some were in conversation with the political content of the HIT. For example, while completing a HIT entitled "NEWS," a participant wrote about "a hybrid immigrant in a car being chased by ICE" and commented, "Immigrants help our country so why is everyone hounding them." Turkers used stories to communicate their views on politics and world events, and to participate in a distributed sharing of ideas around politics, often from a humorous angle. We conjecture that the absence of political commentary in the pilot may stem from the difference in types of HITs. In our field deployment of Turker Tales, participants engaged in many surveys and questionnaires that may have led to more contemplation and reflection about themselves and society at large than receipt transcription tasks did.

Participants' tales also incorporated figures and themes from popular culture, such as television, movies, and the Internet. For example, we saw multiple Harry Potter characters, four Tom Cruises, a Jerry Seinfeld saying "Yadda yadda yadda," a character from the indie game "Papers, Please" and other characters from television and movies, video games and animé. In a story about "Brother Orange," a participant references a 2014 Internet phenomenon in which a stolen iPhone and a series of mysterious orange-tree selfies sparked a strange friendship between a man in the U.S. and a man in China [88]. While waiting backstage before going on the Stephen Colbert show, Lady Gaga completes HITs on MTurk "to calm down" (naturally). Through these stories, participants not only reveal their personal interests in certain media, but also communicate with other Turkers by evoking popular culture, thereby engaging in broader cultural communication.

In sum, Turker Tales effectively engaged workers in (compensated) storytelling-based play. This play allowed them to reveal aspects of their mindsets, personalities, lived experiences, or sense of humor to one another. Moreover, some participants also playfully subverted and co-opted Turker Tales in ostensibly productive ways for grassroots activism and criticism

of MTurk working conditions. Lastly, Turker Tales allowed participants to engage in political and cultural communication.

DISCUSSION

At a high level, our development and evaluation of Turker Tales show that crowd workers are amenable to engaging in forms of play that are not designed to improve the efficiency or quality of their work. Workers did receive small payments for submitting tales, but we note again that compensation wasn't contingent on *playful* engagement, and yet our results indicate playfulness. Perhaps this is not altogether surprising given human beings' proclivities towards play and storytelling, but because it is not an assumption that the research community often makes when designing for crowd workers, it still bears noting. Crowd workers expressed themselves through and subverted the tangential play presented to them through Turker Tales in intriguing and unexpected ways, and the results of our study reveal potentials for using play as a research through design method to increase understandings of a particular context. It also provides insights into how we can support crowd workers as individuals and users of a digital work space by designing technology to serve playful and multi-layered purposes in crowd work. Below, we present the potentials and caveats of using tangential play (a) as a way to encourage shared presence and social curiosity in crowd work; (b) as a paid activity to support crowd workers; and (c) as a research through design method that reveals aspects of a context, especially pertaining to criticism of a context.

Shared Presence and Social Curiosity through Tangential Play

In a platform where distrust and concerns about fending for oneself may eclipse desires to connect with one's peers, as some of our speed dating sessions suggested, interactive play such as that which Turker Tales engenders could creatively allow workers to share aspects of themselves in a safe, anonymous setting. By using methods of shared presence or digital traces, Turkers can get to know other Turkers in spaces in which they would otherwise remain invisible to one another. For example, Turkers may be reluctant to communicate with other Turkers about especially well-paying or otherwise especially beneficial HITs, lest they lose their cherished spot to another Turker. Although the challenges of physical distance may inhibit connections in ways that no single intervention can likely address, anonymous, playful connections could be a way to start to break down those barriers and thereby protect workers from some of the isolating risk factors that remote work carries. Platforms that focus on activism, like the inspiring example of TurkOpticon [54, 52], can decrease worker visibility, but may not be especially instrumental in revealing Turkers to one another as quirky, funny, original, thoughtful, and creative people, or in engaging them in (asynchronous, distributed) conversation about social and political happenings. Embedding play in crowd work may be one way to connect crowd workers and build community in new, mutually beneficial, and socially rewarding ways.

Paying for Tangential Play

We can also consider the value of autotelic play ("play for play's sake") HITs, compensated by requesters. In our design of Turker Tales, we envisioned a freestanding, freely available plug-in that Turkers could voluntarily access while working; in other words, unpaid play. However, in order to ensure research equity, the form of play we implemented in our study of Turker Tales was compensated. In analyzing the results of our study, we reflected that there could be value in viewing our compensated research model not as a proxy for a fully voluntary and unpaid system, but as a potential model for directly compensated, requester-driven play within crowd work. For example, we could envision compensated, tangential play as an opt-in service that requesters pay for; workers that complete tasks for a requester that opts into the service are then invited to participate in additional, fairly compensated HITs that engage them in play that is tangential to their other work on MTurk; the play should also not directly benefit the requesters. For example, metrics of engagement in the play could even be kept completely occluded from requesters to solidify this divide and reduce the tendency towards capitalist or "productive" play and gamification. These "play HITs" should engage participants, strengthen identity, and promote social bonding, while explicitly *not* attempting to improve crowd workers' fluency or efficiency in performing HITs or otherwise functioning on MTurk, differentiating them from crowdsourcing games that perform productive work for companies or organizations, e.g. [36, 48]. This might initially seem impractical or even radical. However, we argue that compensated play can and should have a space in crowd work. Hourly jobs provide paid breaks, salaried jobs provide paid vacations, and both may provide other small forms of play and leisure (e.g. free snacks). Likewise, requesters could show their appreciation to their distributed employees by compensating them for play and leisure performed on MTurk, even if it serves no practical purpose in terms of the work the requesters are trying to accomplish.

Still, compensating tangential play might *reduce* a tendency towards capitalist play, but it does so within the confines of a capitalist system. In fact, compensated pay on MTurk could even further entrench capitalist ideologies. Here, we can draw parallels to co-located workers in corporations such as Facebook and Google, that offer on-site laundry and cafeteria services, and free childcare; such "perks" may seem supportive of workers' well-being on the surface, but also serve to make it easier for workers to devote more of their available time to laboring for the corporation. Thus, any initiatives incorporating play—including compensated tangential play— should be considered critically within the larger context of ethics in crowd work. Our work with Turker Tales initiates an exploration of the design space, considers the possibility of compensated tangential play, and encourages further exploration of the concept of such play in crowd work, but does *not* directly advocate for uses of compensated tangential play in crowd work.

Play as a Design Research Tool

From a research through design perspective, designing tangential play for crowd work could be useful in and of itself. Through designing for play, we revealed opinions of crowd workers about crowd work and specific HITs without explicitly soliciting them. Although we did not specifically design Turker Tales to be paternalistic, we found that when participants appeared to interpret more paternalism in the form of

play presented, the resulting forms of play provided richer insights into the crowd work context. We thereby put forth another somewhat radical implication, which is that further drawing out and actively *encouraging* interpretations of play as paternalistic could be especially useful as a design method.

For example, in our pilot study, many participants viewed the intervention as a paternalistic action. They assumed we sought ways to engage workers through play in a task that some participants felt was demeaning and unfairly compensated. As a result, over 10% of the resulting pilot stories centered on themes of imprisonment, poor treatment of workers, and satirical scenarios suggesting that Turkers who engage in low paying tasks like receipt transcription lack self respect. Meanwhile, in the field deployment, where the play was viewed as more voluntary and in line with their own choices and predilections, such themes of criticism were less prevalent. In co-located work settings, we might imagine criticism of play-at-work as taking the form of, say, employees rolling their eyes to one another or snickering behind the manager's back about "mandatory fun" activities. In the digital space of Turker Tales, criticism appeared to take on a much more meaningful and radical form, with participants making implicit and explicit statements about requester ethics and norms of behavior that self-respecting Turkers should adopt.

In this way, top-down play in crowd work settings could serve as a way for crowd workers to simultaneously engage in and subvert the interactions, co-opting it into bottom-up play that serves as a tool for activism and organization. This may be especially useful for newcomers or other workers that are not yet critically assessing the working conditions or actively engaged in existing platforms that enable criticism and activism, such as TurkOpticon. As we saw in our research, play could become an oppositional means through which to warn newcomers about requesters that devalue the market, and urge other Turkers to esteem their own self worth. Although we do not recommend paternalistic play as a means of direct support for crowd workers, we do think that as a research through design method, paternalistic play could have especial value.

Limitations and Broader Implications

We caution against overgeneralizing the findings from Turker Tales. Our findings are limited by the self-selecting sample of participants in our study activities, by the choice of play implemented, and by our own perspectives and areas of interest in how we interpreted emerging dynamics. Moreover, although the goal of this work was to explore play in crowd work decoupled from efficiency and productivity measures, we acknowledge that some of the findings of this research, such as crowd workers' willingness to engage in unpaid play during work if it makes that work more enjoyable, could be co-opted by requesters seeking to minimize payments. In addition, although we discuss the *potential* of play to increase social connections, the present study does not directly explore or evaluate how play might affect workers' feelings of belonging and connection with other crowd workers. Lastly, we acknowledge that we present this work primarily from *within* the crowd work context. In so doing, our work considers the redesign of certain aspects of crowd work without seeking to upend the system as a whole, which necessarily limits the scope and impact of the research.

FUTURE WORK

We present Turker Tales, and the research involved in its design and evaluation, as a novel exploration of (a) the use of play as a design method to reveal aspects of a digital context, and (b) the potential value of tangential play in connecting and supporting crowd workers. Future work should explore the use of play as a research through design method in other contexts, and further study its application in the space of crowd work. Within crowd work, future work should consider a wider range of tangential play interventions, and study the ways in which Turkers engage in and potentially subvert that play. Examples might include non-narrative play such as puzzle games, activities involving creative expressions such as drawing or music production, and strategy-focused play. We especially encourage further exploration of using play in crowd work to encourage and evaluate feelings of belonging and connection among crowd workers. Moreover, we want to highlight that play is just one way in which we can consider how to better support crowd workers holistically. For example, more work is needed to understand the mental health struggles crowd workers may be experiencing. A range of interventions, playful and non-playful, may help to relieve the stress and psychological struggles that crowd workers may face. Additionally, our work with Turker Tales is but a small step in a direction that calls into question the status quo of Amazon Mechanical Turk and similar crowd work platforms. We need more provocative work that challenges aspects of crowd work systems and also designs for alternate futures of work that do *not* presuppose the dominance of such systems.

CONCLUSION

In this work, we presented Turker Tales, a Google Chrome extension for MTurk that allows Turkers to view, create, and share short stories with one another. We demonstrated that our system allows Turkers to share aspects of themselves with one another, critique unfair working conditions on MTurk, and playfully engage in cultural and political communication. Turker Tales shows that play through storytelling is one way in which we can support crowd workers' user experiences in ways not directly tied to work quality or efficiency, and opens up discussions about roles of requesters in providing more holistic support to crowd workers. This work also demonstrates how play can be used as a research through design tool to gain novel insights into a particular context, and broadens our discussion of ethics and responsibility in crowd work. We hope that this work serves as a starting point for exploring more play-based and holistic supports for crowd workers, and provides inspiration for designing for and deploying systems of play in order to better understand and reveal aspects of variegated contexts in the field of human-computer interaction.

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