

# Being A Turker

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## ABSTRACT

We conducted an ethnomethodological analysis of publicly available content on Turker Nation, a general forum for Amazon Mechanical Turk (AMT) users. Using forum data we provide novel depth and detail on how the Turker Nation members operate as economic actors, working out which Requesters and jobs are worthwhile to them. We show some of the key ways Turker Nation functions as a community and also look further into Turker-Requester relationships from the Turker perspective – considering practical, emotional and moral aspects. Finally, following Star and Strauss [25] we analyse Turking as a form of invisible work. We do this to illustrate practical and ethical issues relating to working with Turkers and AMT, and to promote design directions to support Turkers and their relationships with Requesters.

## Author Keywords

Ethnomethodology; content analysis; crowdsourcing; microtasking; Amazon Mechanical Turk; Turker Nation.

## ACM Classification Keywords

H.5.3 Group and Organizational Interfaces – Computer, Supported Cooperative Work

## General Terms

Human Factors

## INTRODUCTION

The concept of crowdsourcing was originally defined by Jeff Howe of Wired Magazine as “*the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call.*” [8] This ‘undefined network of people’ is the key topic of this article. We present the findings of an ethnomethodological analysis of posts and threads on a crowdsourcing forum called Turker Nation<sup>1</sup>. We have sought to understand members of the crowd – their *reasoning practices, concerns, and relationships with requesters and each other* – as they are shown in their posts on the forum. We seek to present them as faithfully as possible, in their own words, in order to provide more definition to this network of people. We

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believe that this will be beneficial for researchers and businesses working within the crowdsourcing space.

Crowdsourcing encompasses multiple types of activity: invention, project work, creative activities, and microtasking. This latter is our focus here. The most well-known microtask platform is Amazon Mechanical Turk (AMT)<sup>2</sup>, and the Turker Nation forum that we studied is dedicated to users of this platform. The basic philosophy of microtasking and AMT is to delegate tasks that are difficult for computers to do to a human workforce. This has been termed ‘artificial artificial intelligence’. Tasks like image tagging, duplicate recognition, translation, transcription, object classification, and content generation are common. ‘Requesters’ (the AMT term for people who have work to be completed) post multiple, similar jobs as Human Intelligence Tasks (HITs), which can then be taken up by registered ‘Turkers’. Turkers (termed ‘Providers’ by AMT) are the users completing the HITs, which typically take seconds or minutes paid at a few cents at a time.

For Amazon, the innovative idea was to have an efficient and cost effective way to curate and manage the quality of content on their vast databases (weeding out duplicates, vulgar content, etc.). While Amazon is still a big Requester, AMT has been deployed as a platform and connects a wide variety of Requesters with up to 500,000 Providers. However, Fort et al. [6] have performed an analysis on the available data and suggest that real number of active Turkers is between 15,059 and 42,912; and that 80% of the tasks are carried out by the 20% most active (3,011–8,582) Turkers. While these numbers are useful, the research community still has little deep qualitative knowledge about this workforce. Questions remain unanswered such as: how and what do they look for in jobs; what are their concerns; and how do they relate to requesters?

## LITERATURE REVIEW

To date much of the research on AMT takes the employers’ perspective, e.g. [14, 15, 17, 18], and this has in turn been highlighted [6, 16]. Silberman et al. [23] note that this mainstream research looks at how: “*[to] motivate better, cheaper and faster worker performance [...] to get good data from workers, quickly and without paying much.*” When it comes to the Turkers themselves, research is more limited,

<sup>1</sup> <http://turkernation.com/forum.php>

<sup>2</sup> <http://www.mturk.com>

mainly consisting of demographic [11, 20] and survey data. Ross et al. [20] found that the majority of Turkers (56%) are U.S. based, but there is a growing number of Indian Turkers (36%) and other nationalities. Nearly one-third of respondents had a median annual income of <\$10,000. There has been an on-going debate about why Turkers work – whether it is primarily for money (and thus is clearly work) or other reasons (e.g. enjoyment, pastime, etc.). This discussion largely stems from the low wages reported on AMT [20] meaning that it is hard for researchers to believe that people could be doing it for money. Interestingly, in most studies on this topic, money is reported as the primary motivator [2, 11, 13, 20]. However, for example, in [13] this is discounted as due to “*social desirability bias*”. The authors justified this decision by stating: “*bearing in mind the low payment level, this seems to be remarkable.*” Other research has suggested a “*social desirability bias*” for US (compared to Indian) Turkers, but still considers that pay is a significant motivating factor [2]. Our paper contributes to this debate, showing that at least for posters on Turker Nation, the primary reason for working is to earn money, and that they orientate to AMT as a labour market. By examining how Turkers themselves talk about their wages and their reasons for working we give a more nuanced picture of what such low wages mean in practice (and why someone might ‘choose’ to earn so little).

There has been much less qualitative work into what it means to be a Turker, but notable exceptions to this are Silberman, Irani and colleagues [12, 22, 23]. For example, Irani had the intriguing idea of posting a HIT asking respondents to articulate a ‘Turkers’ Bill of Rights’<sup>3</sup>. A number of recurring topics were found in the 67 responses including unfair rejection of work, slow payment, low wage and lack of communication with requesters and AMT [24]. They posted questions on Turker Nation, interviewed Turkers via Skype and participated in various forums [23]. They identified the following set of problems for Turkers: employers who don’t pay; identifying scams; the cost (to workers) of poorly designed tasks.

That research has been primarily concerned with the employers’ perspective has had far reaching consequences. The design of AMT largely supports the needs of Requesters over those of Turkers. Two major examples of this are *information asymmetry* [3, 4, 23] and the *imbalance of power* [5]. Information asymmetry can most clearly be seen in the way reputations are handled. Whilst AMT provides means to rate Turkers’ reputations, there is no equivalent means for rating Requesters [1, 23]. Furthermore AMT deliberately hides the relationship between Turkers and Requesters, often to the detriment of the Turker [3]. Requesters have better information on the Turkers than vice versa, as well as greater powers of redress. Felstiner [4] goes so far as to suggest that such *opacity* and lack of information ultimately can lead to

“*deception*” and “*violation of privacy*” of workers. This has led Silberman et al. [23] to call for research which takes the workers’ perspective in crowdsourcing as part of an effort to develop a fairer system of relationship-based crowdsourcing. As one step in this effort, Irani and Silberman [12] developed a plugin to AMT which enables Turkers to rate Requesters. This plugin provides a very useful resource for Turkers, enabling them to identify good and bad Requesters on the basis of their collective experience.

A parallel approach was taken by Kitter et al. [16] who used the question ‘would we want our children to be crowdworkers’ as a starting point for trying to create a common research agenda. They warn against the dehumanizing nature of crowdsourcing and specifically call out the need to “*improve task design through better communication*”.

Our study of Turker Nation adds to the research responding to the call to take the workers’ perspective. Unlike most other research e.g. [13, 24] the data we collected is of conversations Turkers have amongst themselves, it is naturalistic and is not formulated in response to a research request or HIT. Silberman et al. [23] already showed the value of engaging in working forums to get access to the Turkers’ perspective. The research reported here goes further with a more wide-ranging, systematic study of the posts of a subset of Turkers. The result is a deeper and more nuanced understanding of how Turkers operate as economic actors in the AMT labour market; how they reason, and how they make calculations and choices about who to work for, and on which jobs. We also look more deeply into their relationship with Requesters; how do they like relationships to work, and how do they respond emotionally and ethically? We also bring some understanding of Turker Nation as a community and draw attention to the extra hidden organizing work they engage in in order to manage their working work. We finish by discussing our findings in relation to Star and Strauss’ [25] concepts of invisible and visible work and offering some design directions.

#### SETTING AND METHOD

The ‘setting’ for this ethnomethodological study is the forum of Turker Nation. We present an ethnomethodological analysis of forum posts on Turker Nation, focusing on a content analysis of posts publicly visible on the forum. For contextual understanding we also researched other places on the world wide web, particularly those discussed in the forum such as the sites for technologies like Turk Alert<sup>4</sup> (provides requester HIT alerts) and Turkopticon<sup>5</sup> (gives Turker ratings of requesters), script sites, blogs for both Turkers and Requesters, journalism sites, and crowdsourcing sites. We looked at Turker Nation as the core site but also followed debates and discussions ‘off-site’ (i.e. specifically when

<sup>3</sup> <http://turkwork.differenceengines.com/blog/>

<sup>4</sup> <http://www.turkalert.com/>

<sup>5</sup> <http://turkopticon.differenceengines.com/>

external material was discussed ‘on site’ or when forum members posted on external sites) to broaden and deepen our understanding.

The first author has been a member of Turker Nation for 7 months carrying out extensive (>200 hours) observation of the community, by reading public threads. Interaction was limited to an initial introductory post and several ‘likes’. The materials collected were notes made while reading thoroughly and systematically through as many threads as possible. Hundreds of excerpts from posts and threads that were representative of often repeated topics, discussions, and reasoning were collected by taking screen shots. These have been transcribed for this paper with the original style maintained but with a few formatting changes (e.g. removing blank space) for presentational purposes.

Turker Nation is a general forum that concentrates on all topics to do with AMT. On joining the forum, members have limited access to various areas and threads. With increasing activity, members can increase access rights based on their usefulness to the community (engagement, sharing information and tips, scripts ideas, etc.). The majority of the public areas are devoted to issues directly related to being a Turker and doing AMT HITs. By far the largest area is the ‘Requesters hall of fame/shame ratings’ where Turkers can discuss their experiences with Requesters. Requesters may, and do, engage directly with Turkers in these threads. Other key areas relate to general discussions of AMT, problems, suggestions, computer tips, scripts, and tools. There is an area devoted to AMT and Turkers as represented in the media and academia. Also, there are various threads related to community communication and interests. In studying and reporting on Turker Nation we tried to cover as many public areas as possible, focusing on the key areas and threads (as indicated by post volume) and followed the threads as they unfolded and developed.

We think we should be clear about the data we discuss in this paper and who the Turkers are in relation to the wider population of AMT workers. AMT only provides payment in the form of money (as opposed to Amazon vouchers) to workers in the US and India and the main populations of workers are located in these countries. Turker Nation is but one forum and is primarily used by US workers, so, although we may use the shorthand of ‘Turker’ in this paper, we are only making claims about the Turker Nation community. The excerpts presented are instances of things we have many examples of, and whenever something unusual or debatable (attracting differing views) is presented we make this clear.

Our analytic approach is ethnomethodological [7]. Ethnomethodology has a long established history within CSCW dating from the early work of Suchman in the US [26] and the Lancaster group in the UK [9]. An ethnomethodological approach can be applied to a wide range of data; one form – conversation analysis (CA) [21] – focuses exclusively on transcribed conversations, while other studies have analysed text and reading practices [27], and

still others have been applied to on-line interaction [19]. This approach is well equipped for understanding the activities undertaken on Turker Nation. Ethnomethodology involves detailed analysis of naturally occurring data. It eschews theorising and instead uses the data – in this case posts – to explicate how people organise their activities as a recognisable social accomplishment. A key focus here is on the actions Turkers are trying to achieve through their posts and everyday reasoning practices and understandings exhibited within them. In contrast to other qualitative approaches it does not use structured procedures for coding and organising data. This should not be mistaken for a lack of thoroughness as the collection of data is manual and extensive, and the phenomena reported on here are seen time and again in the data and are thus understood to be important and commonplace topics for the Turker Nation community. Our close analysis is augmented with understandings gained through our prolonged observation and reading of the forum posts. Topics were emergent in the data and we explicate the material in its own terms rather than fitting it to a theory or making judgments about the activity. We selected posts on commonplace topics we believe are interesting for the CSCW community.

#### FINDINGS

One way to describe AMT is as a labour market. Some, such as Tim Worstall (a blogger for Forbes) consider AMT as a relatively pure form of market; through mass individual actions of employers and workers the market falls into a fair equilibrium. Bad employers and workers are rooted out as their poor actions become visible. Wages or pricing settles to a ‘natural’ level such that “*apparently half a million people find work at pay rates they’re entirely happy with but pay rates that are below minimum wage*” [28]. Given the research by Silberman et al. [12, 22] and Ipeirotis [10, 11] this argument seems shaky to us. In an attempt to get a clearer view on the matter, we present data on a set of emergent topics, posed as questions that probe AMT as a labour market from the point of view of the Turkers.

#### Why do turkers turk?

A key first question, however, is *do* Turkers orient to AMT as a *marketplace* where they sell their labour? Do they see themselves as working and are they primarily motivated by monetary gain? All the evidence from Turker Nation indicates that this is how they view themselves. Money, and the best way to earn it, underpins much of the discussion about AMT and we can establish it as the key reason why Turker Nation members do turking. We do not argue that other factors are never part of the experience, but that they are ‘side benefits’ alongside earning money. Interestingly, the Turkers themselves have discussed this very point in a Turker Nation thread about whether Turkers do HITs “*because you like them, regardless of what the pay is*”. A couple of representative responses are shown in example 1:

**Example 1: Turkers Turking for Fun?**danturker<sup>6</sup>

This attitude would be requesters dream come true. The workers come here to have fun and play and the lousy pay for work is not an issue. This attitude helps create low pay for the AMT work force that does care about fair pay.

larak56

I agree with most everyone here. While I do find some of the HITS fun and actually learn an incredible amount by doing HITS, I do it for the cash.

While some Turkers did discuss the fact that they found some HITS to be fun, interesting, or educational (e.g. larak56) this was invariably related to comments about the HITS also paying well. Some Turkers did state they had made decisions to accept somewhat (but not much) lower pay if a task was more enjoyable. Other Turkers were more direct and dismissive. Danturker criticises the ‘HITS for fun’ attitude as bolstering up a wrong perception that Requesters do not need to pay good wages. The idea that Turkers’ actions *en masse* send messages to Requesters and that Turkers are responsible for promoting fair pay is a dominant theme of Turker Nation discussions.

**How much do Turkers make?**

Given that Turkers are doing AMT work for money, is it “remarkable” given the “low pay,” or is it in fact just a relatively low paying job? We must bear in mind that the majority of contributors to Turker Nation are US based. There is an interesting thread where they discuss earnings for 2012 and we have picked out some representative posts:

**Example 2: Turkers Establishing Pay Expectations**jimtexas79

I was hoping to make at least \$3,650.00 (you know, 10 bucks a day) but, alas, I fell short. I blame all those summer months that I slacked off. :[

So, how much didja make? Was it what you hoped?

mwanza57

I made \$1,179. Would love to double that for next year.

bubbles

\$14,476.93 Hoping to do better this year.

defectturk

It is a full part time job for me. I can turk during slow periods at my day job and from 4-10 during the week I turk. Because of pay cuts at my day job I would have to be working a part time job outside the home if I did not turk. And yes, my boss is aware of my activities and when they cut our pay the last time, he openly told us that if we can find other work that he would be flexible in allowing it. Just trying to hold on until the housing market rebounds and keep the company in business. It is cool of him to allow it, but I would much rather have my salary back and drop turking.

The highest earnings we saw were ~ \$15k for the year (see bubbles, but also defectturk). Such earnings are typically reported by people who appear to be experienced Turkers – through their posts and high status on Turker Nation. They state they only take well-paying, more professional AMT

work. However, earnings otherwise are of all levels down to ~\$50 a year. We can’t make easy comparisons to an annual wage in more traditional labour markets, because we do not know the number of hours any one Turker has worked. We want to pick out a few more elements from the example that are also of interest:

***Turkers are interested in comparison to gain information and knowledge:*** they start threads like this so they can understand where they are in relation to others and what earning potential they might reach and how quickly if they spend more time or progress to greater proficiency.

***They set themselves targets:*** e.g. to make \$10 per day (jimtexas79), or to double (or better) the last years’ amount (mwanza57; bubbles).

***The importance of their AMT income varies depending on earning ability and other life circumstances:*** as has been noted elsewhere, for some, AMT is their primary source of income, for others it is supplementary - sometimes to buy something special, sometimes to buy vital everyday things.

**Why do they “choose this wage”?**

Interestingly “the current federal minimum wage is \$7.25 per hour. If a minimum wage worker is employed full-time (forty hours per week for 52 weeks), that worker would earn \$15,080 annually<sup>7</sup>”. The best workers we are aware of from Turker Nation can make an equivalent yearly rate as working 40 hours a week at minimum wage. Again, we must note that we do not know how many hours these Turkers are working each week. Clearly, Turkers on Turker Nation are not getting rich, but are working in rather low paid work. We can imagine that the experiences of Indian Turkers may well be different, including, most obviously, that \$15k a year in India would be considered a good wage.

Another feature of posts is that they reveal details of the way AMT work features in Turkers’ lives and how they reason about their work. In bubbles’ response to lypert she outlines her turking habits – 4-10 (pm) during the week but also during work time. She works in a full-time job relating to the housing market and her boss has allowed her to do AMT work during a period of market depression. For bubbles choosing turking is a product of current job market conditions rather than a preference; “I would much rather have my salary back and drop turking”.

From our extensive searches through the forum we see that even those doing AMT work just for extra money (e.g. a particular purchase) do so because they do not have enough money from other sources. What is also clear is that some are earning a good deal less than \$15k *per annum* and using AMT as a means of helping to live ‘hand-to-mouth’:

<sup>6</sup> We have changed Turker aliases to add more anonymity.

<sup>7</sup> <http://poverty.ucdavis.edu/faq/what-are-annual-earnings-full-time-minimum-wage-worker>

**Example 3: Turking Hand-to-Mouth**jane

I am having a hard time. Mentally, spiritually, physically, and especially financially. My roommate has been out of work for almost 2 months, and ran out of money a few weeks ago... I have to come up with \$\$ if he can't to keep this roof over my own head. And he does now have a job that he is in training for--tho he will not see any money from it for a few MORE weeks. In the meantime, rent is due today, and I don't have all of it. I am going to have to beg the office to take what I do have, and let me pay the rest next paycheck. I could stand that, if that were all there was, but the power and internet need to stay on, or NEITHER ONE OF US will have any income. I paid the power right before cut off last time--that means it can't be long before cut-off notice comes a-knockin again. I know the internet bill is like that too now... I have been beating my head in trying to do more turking, more anything online [... rest of post omitted...]

There is a forum area for 'prayers and good vibes,' where people share their problems, looking for support or advice. We see that some Turkers live in difficult circumstances, where AMT work is vital to generating enough income to make ends meet. For this 'digital underclass' who have difficulties accessing the regular labour market (e.g. being housebound, or living a disrupted life), AMT can form a *safety net*. In a modern version of living on the 'breadline' an internet connection has been promoted to the status of rent and vital utilities (like electricity and water), as something crucial to maintain. For jane, it is key for her continued access to the job market. Other discussions on the forum tell us that in the absence of other forms of assistance AMT has some benefits over traditional labour markets. Regular or set hours are not required, money does not have to be spent on transport costs, and judgments are restricted to the work you submit rather than your personal appearance and the way you present yourself.

**How do turkers relate to requesters?**

By far the largest area of Turker Nation is devoted to the 'Requesters hall of fame/shame'. What is clear is that for Turkers on Turker Nation, the primary concern is to find good Requesters and avoid bad ones. In straightforward cases, such as shown in example 4 and 5, forum participants simply describe their experience and subsequent assessment of particular Requesters. In example 4, you can see that the Turker explodeman provides the basic history (a week of work) and key components (all HITs approved, fair pay) for why they are a 'good requester'. In example 5, we see a contrasting assessment, this Requester is bad because of their 'mass rejection' and this is aggravated by their "*demeaning*" comments. To further substantiate the claim neilrsj notes they have also talked to other Turkers who have had similar experiences.

**Example 4: A Good Requester**explodeman

All hits I have done for Project Tatoonie<sup>8</sup> in the past week have approved and are fair pay. Good Requester.

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<sup>8</sup> Requestor names have also been changed.

**Example 5: A Bad Requester**neilrsj

Got a mass rejection from some hits I did for them! Talked to other turkers that I know in real life and the same thing happened to them. There rejection comments are also really demeaning. Definitely avoid!

Comments are peppered with references to pay, rejections, and responsiveness. Turkers' focus on pay and their ratings (key for future earnings) reinforce the view of turking seen as work. Interestingly, interactions with their 'employers' matter. This is shown most clearly in their use of emotional language. Emotional involvement happens even though the major part of the relationship is constituted simply in the process of choosing and submitting HITs, receiving approval (or not), and getting paid (or not). However, by doing HITs and communicating or miscommunicating, Turkers extrapolate opinions on Requesters based on sparse information. Good behavior (example 4) is lauded and shared, bad behavior is criticized and shared (example 5). When Requesters fail to acknowledge the relationship and the emotional and moral involvement Turkers have, there are consequences for both parties:

**Example 6: Consequences of a Bad Requester**iambob

I have done a number of his hits. Then one day I get this email:  
*You received a bonus from Optimal Page Solutions for work related to. The value of your bonus is \$0.01 USD yes ONE CENT*  
The requester included this note:

***If you spent half the amount of time looking for a job as you spent scamming your way through Mechanical Turk HITs maybe you'd be able to find a real job...<sup>9</sup>***

The next day I get a block message from him. WTF?! He asked for the work to be done and I did it. My hit total is under 2000 so I do not see how I am a scammer in his mind. I have done other similar real estate write ups with no issues.

Turkers are understandably offended when Requesters reject HIT submissions for reasons they do not understand. This not only deprives them of money they believe they have rightly earned, but it has a damaging effect on their approval rating. A high approval rating (90% or above) is a key metric for getting access to better paid and more professional, interesting work. Hasty judgments by Requesters result in unfair treatment of Turkers, and can rob them of pay for completed work and access to future work through potentially no fault of their own [22].

Insult is added to injury when comments are demeaning, as well as being seen as wrong. "*Blocking*" (see example 6) is when Requesters officially bar a Turker from working for them, which is a legitimate tool to have at their disposal if used fairly. However, if Amazon becomes aware of any Turkers getting too many blocks they may well suspend their account. We can easily see where the ire of iambob comes from, particularly when the avenues of redress are limited;

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<sup>9</sup> The italicised text is a quote from the requesters email.

Turkers do not have a reciprocal system action to blocking (just avoidance and publicising) and it is complicated for them to prove their innocence. Actions can be taken against bad Requesters but the two sides are not treated in an even-handed manner.

### Requester/Turker relationships

These posts so far demonstrate Turker-Requester relationships are more than the sum process of doing HITs and receiving pay. Many posts show that direct, open, polite, and respectful communication is highly valued:

#### Example 7: An Engaging Requester

##### modgirl

Great requester, honest, good communicator, cares about what is best for us as much as is best for him. Highly recommended.

You've proven to me that you are a good requester because you've asked here for help—you have my respect.

As with Modgirl, praise in posts for good communication is readily forthcoming and often effusive. This contrasts with the negative responses to adversarial or rude communication (examples 5,6). Modgirl, a Turker Nation moderator, later points the Requester to a thread that discusses good HIT design, and we have seen many examples where Turkers will fruitfully discuss HIT design directly with Requesters. As Kittur et al. [16] suggested it seems that good communication can improve HIT design. However it is not clear what proportion of requesters make use of this possibility or are even aware of it.

Threads on Requesters often contain assessments of their communication practices and their willingness to work with Turkers. They are not simply about unequivocally labeling Requesters good or bad. While some Requester threads are brief and clear – a few comments that endorse the original view – other threads have contrasting views put forward, and still others show how the relationship can evolve:

#### Example 8: Evolution of a Requester

##### Foldergirl

Does anyone know if he is a good requester to work for? He has 1 review on TO. I did a \$.02 hit. Very quick and easy answer 10 multiple choice questions. Not been paid yet to report on the promptness. It is majority rules but answers are not opinions, I didn't know if that would make a difference or not.

##### Mezze

I did one hit yesterday, and its still pending. In my opinion the pay is too low for the time required, the pay is also too slow to look past its low payment all of which is assuming you get paid at all because it is majority rules graded. Big thumbs down for me.

##### jenny492

I just started working on his hits this week. I've probably done several hundred of his .15 hits. They all approved right away, and he got back to me quickly when I had a question. Thumbs up from me

##### Buffy

Evidently he learned from earlier experience. I have been doing work for him since last month. He is just super nice, normally online while the work is going on and answers any questions right away. The hits are now paying .15 each. My favorite requester.

In this example the Requester-Turker relationship seems to have matured positively, according to the Turkers. At first the posts indicated wariness, explicit in Foldergirl's post. This post also demonstrates the types of research and reasoning undertaken by Turkers in relation to Requesters. First, a poor "review on *Turkopticon*" is referenced. The HIT seemed "quick and easy" but there is concern over not being paid yet. There is further worry about the tasks being rewarded on 'majority rules' – which refers to HITs that are only accepted by the Requester if the Turker has responded with the same answer as 'the majority' of those doing the same HIT. "Majority rules" is a relatively common way to try to achieve good quality in tasks like tagging. Turkers consider these types of tasks risky, especially when they are subjective (e.g. an aesthetic judgment). However, in this case Foldergirl feels this should not be a problem, as the HITs are about "answers" (facts) not "opinions." The second post agrees with the first and is even more negative. The last two posts come from later in the thread but turn the initial posts around stating in various ways how things have changed; HITs are approved rapidly and the Requester is very available and responsive. This example demonstrates that Turkers may be more likely to come to negative conclusions when Requesters do not play by the 'rules' of good practice that Turkers orient to such as: designing tasks well; pricing them fairly; providing rapid approval and payment; responding to communication; and being polite. Lack of information seems to increase the *adversarial tension* between Turkers and their Requesters.

These longer threads always demonstrate the trajectory of a relationship between a set of Turkers and a Requester that may be rather complex, involving different topics and changing opinions both at an individual and at a group level. The posts often describe a summary of on-going individual experience and opinions, and there can be groupings around positive and negative views contained in a single thread. The Turkers are using the discussion to work out whether a Requester is good or bad. It is clear relationships with Requesters matter and that they are on-going and open to revision.

### Turker workplace ethics

Turkers look for and expect good practice and ethics from Requesters, what about themselves? Often Turkers are thought of as having a significant amount of untrustworthy members amongst their ranks. While it is indeed true that there are some bad apples, the discourse seems to be weighted too negatively. In Turker Nation we see many examples where Turkers complain about being unfairly labeled as bots, spammers, and so forth (see example 6) and we have every reason to believe these people are genuine. The discourse within Turker Nation around cheating generally works as follows: cheating is generally frowned upon; if a Requester pays an insulting amount per HIT it is no shame if they fall prey to cheats or crooks; if a Requester designs their task badly and leaves it open to scams, that is their problem, but we can help them redesign their HITs if

they care to consult us. All of this seems pretty fair, particularly as Turkers are also on the other end of nefarious activity – fraudster Requesters, badly designed HITs, unjust blocking and suspensions, and insulting pay and comments. In light of this, interestingly, the following post comes from a Requester blog:

**Example 9: Accusation of Cheating**<sup>10</sup>

mturkforum.com (*another popular forum*)<sup>11</sup> has become a huge problem for requesters. Every day there are discussions about the intricacies of HITs on this forum. How to work around qualifications, answers to qualifications, and answers to survey questions. I personally tried to inform the people on this forum and the forum admin that they are breaking requester rules along with Amazon Terms of Service, but it fell upon deaf ears. I was even banned for trying to help.

In highlighting this ‘huge problem’ the author directed the reader towards some examples such as the following:

There's a \$1.20 survey by Tanika Sangakkara about culture and brands, the qualifying questions are about whether you are hispanic or not so if you qualify, easy money took me about 8 minutes.

Trying to take an objective look at this we can consider the reaction disproportionate. Upon examination of the post in question, there is no evidence that the poster is encouraging other Turkers to masquerade as Hispanic, it seems more like the commonly found posts which help one another to more efficiently direct their time. However, the Requester, who probably does not understand the requirements and challenges of Turker work (i.e. locating quality tasks is difficult) reads the post as ‘cheating’.

Another way to look at Turker ethics would be to consider notions of blame and fault finding – do Turkers always look to blame and find fault with Requesters, or do they find fault with themselves? We have already seen that Turkers will praise and change their mind in relation to Requesters, what of the other side?

**Example 10: Accepting Responsibility**

*lilacstripes*

I do these HITs when I want something mindless or am short on time (read: two monster children hanging off me) Only had 1 rejection from them, which was fair (I wasn't paying close enough attention)

Example 10 shows a common phenomenon – if a rejection is fair from their understanding, or in the explanation they are given, Turkers on Turker Nation will generally admit fault. As should be becoming clear, everyday moral standards are not suspended by Turkers in the AMT marketplace. With the post from SeerKRap (example 11 below) we get an erudite example that encapsulates a number of elements we see time

and again. First of all, rejections hurt, and it is acknowledged that Turkers will want to vent and flame. However, we see a lot of (often cooperative) activity where Turkers seek to make sense of why things have gone wrong and self-critical work is a part of this. They also look for causes that are technical or with HIT design, and Turkers are more tolerant of genuine mistakes, particularly when the Requester seeks to sort them out:

**Example 11: Don't be too Quick to Damn**

*SeerKRap*

... Plus I can see there are occasionally quirks within a Requester's system that cause problems, and in all fairness to the worker, that would piss me off too, if I felt I had put forth a noble effort, only to log into my stat sheet and find it splattered with double digit rejects. It is clearly evident that these "quirks" with the ProductHH system occurred a half a year back or more, and to my experienced knowledge, (and apparently others as well) have been satisfactorily corrected. In light of all of this, I have two comments about my ProductHH experience.

First of all, if someone has a "bad experience", then that problem is corrected, please come in here and let folks know about the positive side of a Requester. Some have, but then obviously, others have not. Also, I would caution on blackballing a Requester based on only one bad experience that involved one of those aforementioned "glitches" in the system.

Secondly, try please to avoid bashing a Requester during one of those heated moments, fresh after seeing the rejection box tallying up, and find out the truth before banging away on your keyboard in utter disgust, scaring the rest of us away from an otherwise potentially good Requester, only because you're miffed at your current situation. ... *rest of post omitted ...*

Another interesting feature of this post is the *community orientation*. SeerKRap identifies personally and emotionally with flammers, but suggests that Turkers should try and be fair and objective. Objectivity is not only fair towards Requesters, but Turkers also cite the benefit to the community. If Requesters are unfairly ‘blackballed’ it is not only damaging to them, but may put off other Turkers from working for decent Requesters. As such, SeerKRap proposes it would be beneficial to inform the community that they have been hastily unfair. This type of perspective, expressed very clearly by SeerKRap, is borne out in multiple cases either through the actions of singular Turker Nation members or through the development of various discussions between Turkers. Notions of fair play and community ethics both within Turker Nation and in relation to AMT's healthy functioning as a marketplace are clearly important issues for them.

**What pay do Turkers expect?**

In the next 3 examples (12-14) we return to the notion of pay, but this time in terms of hourly rate per HIT. Various posts so far (e.g. in examples 6 and 8) talk directly about pay rate per HIT. In many of the discussions, particularly in relation to Requesters, we see extrapolations being made about how pay per HIT translates into pay per hour. Turkers also make judgments about whether these rates are worth it and in what

<sup>10</sup> <http://turkrequesters.blogspot.fr/>

<sup>11</sup> Turker Nation is strict compared to other forums. Their rules and large number of ‘banned’ members attests to this.

circumstances. The posts in example 12 are responses to a blog on a crowdsourcing site that claimed a pay rate of \$4-6 was a reasonable rate:

**Example 12: Establishing an Hourly Rate**

Maryann

\$6 an hour is actually better than the majority of requester's pay. I laughed a little when I read that though because that is how much I made at my first job when I was 15 years old working in an amusement park. [... rest of post omitted ...]

connorh

As for the suggestion to price \$4-\$6 an hour? Just perpetuates the 'digital sweatshop' instead of a global mutually beneficial workforce. Pathetic.

Interestingly \$6/hour is not such a low rate for AMT in general. There are some HITs that pay a rate closer to \$1 per hour. Regardless, in all of the discussions of pay, it is clear that the Turkers on Turker Nation orient to an idea of fair pay – and that that idea of fair pay is largely framed by the current minimum wage in the US (\$7.25). Turkers index AMT pay to wages in more conventional realms of work: “that is how much I made at my first job when I was 15 years old working in an amusement park” and “digital sweatshop”. The comparison here by Turkers is to the rules or norms of the regular job markets of their country. More experienced Turkers who have been earning ‘good’ wages (~\$10/hour and sometimes ‘windfall’ type jobs that could double or triple that) will not go near jobs that fall below ~\$7/hour:

**Example 13: An Attractive Wage**

HoustonLady

I have been doing a lot of these transcription hits the last few days, and I have no complaints. They approve and pay quickly. The speakers are, for the most part, clear and easy to understand. I don't feel rushed and it takes me less than 2 for the 25-seconds-or-less ones, so the pay is definitely acceptable. \$8 an hour is fine for me, sitting in my sweats at home.

HoustonLady makes her calculation of a worthwhile job clear. As shown clearly in the forum, when jobs become available Turkers often do an initial investigation; what does the HIT comprise, how long does it take, how quickly until I become proficient, and how much will I earn? These calculations help them to decide ‘is it worth it for me?’ Their community discussions with other Turkers also input into these calculations. A second feature is that even at \$8/hour (quite high for AMT) they may still trade off the wage level against other factors, “sitting in my sweats at home”, that can make it a more attractive wage.

Of course calculations of ‘worth it’ or assessments of value are *relative to a person's situation* (in a general but also context specific sense) and what their ‘goals’ might be. In example 14 we see such a contrast. Defectturk's investigations have led her, on multiple counts (poor pay, HIT and interface design) to reject jobs by the requester. Majeski agrees with the assessment of pay but suggests that there are redeeming features that mean he sometimes does

these HITs (to get his numbers up, they are easy to do taking little ‘work,’ and it saves spending time searching):

**Example 14: Varying Expectations**

defectturk

I would rather pull weeds, do laundry, wash the car, clean the toilet than work for this shit paying requester. Clunky interface, too many tags/ratings/whatever per hit, works out to about a buck an hour. They should be banned from mturk, or even better forced to work on their own shit paying hits.

majeski

I like to do their HITs when I want to get my numbers up. I usually plop on the couch, put TV on in the background and zone out with my laptop. The pay rate kinda sucks (except for the HITs where you found the twitter for a celebrity. I found that those pay pretty good) but I have never been rejected. It's not a bad option when there is nothing going on and you don't want to spend an hour of unpaid searching.

An important thing to realise is that broadly speaking the Turkers on Turker Nation fall into two categories, novice and experienced. Novices have to concentrate on getting their numbers up for both their approval rating (>90%) and their HIT count (1000 or even 5000). Approval rating is particularly important because it is more likely to be volatile when first turking, mostly because Turkers are learning both who the honest Requesters are and how to carry out tasks correctly. Also of note is that aspects of turking like simply searching for jobs can take a considerable amount time. The time spent learning and searching are clear examples of *invisible* work that Turkers must engage in, hence novices are often willing – like majeski – to accept poorer paying jobs as an interim means to the bigger goal of better paying (more interesting) work.

While experienced Turkers are not so concerned with HIT count, as it only increases, approval rating can rise and fall and is something that is of key importance to them. High approval rating is crucial in getting access to a wider selection of and better paying HITs.

This notion of a dual banded pay-rate marketplace is something Turkers are generally aware of and it draws a lot of discussion. Many Turkers (and especially the experienced Turkers on Turker Nation who work to levels of US minimum wage and above) are aware that this is a threat to the functioning of a fair pay market. Connorh is clear in his comment about “digital sweatshops” and defectturk suggests the \$1/hour requester “should be banned from mTurk”.

**Turker view of the market**

Continuing on the subject of market we can transition into a final topic – Turker views on the AMT labour market as represented by their responses to the media (including academic papers). Based on their responses to various media reports on AMT and Turkers, it is clear that while it is considered important for Requesters and Turkers to adhere to Amazon's terms of service, they do not seem to want the US government to legislate and regulate AMT. This is not because they are happy with everything on AMT, but



because the Turkers believe that their power to influence and manage the way the market works comes most fruitfully from their collective individual actions (e.g. in accepting and rejecting requesters on the basis of pay):

#### Example 15: Reaction to AMT in the Media

modgirl

<http://economix.blogs.nytimes.com/20...er=rss&emc=rss>

Talk about unoriginal - I think one journalist from every news outlet drew a number out of a hat. The first person got to write the article on mTurk, and everyone thereafter put it through mTurk to have it rewritten sentence by sentence and then they got to publish it themselves.

Aren't any journalists focusing on something important? Why are they trying to take our work from us when jobs are so hard to find? If laws pass regulating hourly wages on mTurk, requesters will flee for the hills and we'll be FUCKED. Journalists, LEAVE US ALONE! We don't want your help.

PrettyPois

LOL the problem is that they (those who are writing) have jobs! They have decided to help us who don't. Armed with nothing beyond a surface level understanding of the turk-viornment and a savior complex more than likely brought on by the fact that they have jobs when no one else does, they just MUST fix what isn't broken. Hmm maybe it's jealousy that there are people who can make a living without having to punch a timeclock and drive to work. IDK. Makes me sick.

Turkers worry that 'interference' by journalists and academics – often done with noble intent – will actually just lead to closing AMT. When we consider AMT as an alternative to conventional labour markets and how it functions as a *safety net* for some, we can understand the worry. If AMT is closed down where else will they go to get this money? In addition to this fear their reactions are heightened by the sometimes condescending or demeaning tone of press and academic work. This work can fail to acknowledge that the Turkers are intelligent human beings making informed choices (even if in restricted circumstances) but instead sees them as people to be pitied and looked after. Modgirl and PrettyPois make these points very clearly. A key focus of these threads is often the misunderstanding and misrepresentation of Turkers and AMT work.

#### Example 16: Reaction to Academia

general65

I don't like it. Another idiot professor who thinks he knows what's best for the private market. This will only mean the government getting involved and regulating the requester's which in turn will end up in less pay for us. Someone please tell this idiot professor to stay in the classroom.

Turkers orient towards the idea that they can regulate the AMT marketplace through their actions. This is true to an extent, but may be problematic as organizing concerted action may be too difficult for these non-networked individuals [4] and it has been argued that Requesters benefit from the lack of cooperation amongst workers [5]. Their

ability to influence the market depends upon how much solidarity workers show in their perspectives and actions (which is currently unknown), but could also be facilitated with tools developed to specifically to aid them. Some Turkers refer to Turker Nation as an informal *union* and they often praise collective agency.

Another side to this debate centres around distrust of conventional government. This is clear in example 16, where general65 forwards the view that government gets in the way of better functioning markets – legislation raises costs for employers which threatens market viability and/or workers take the 'hit' in their wage levels. While it is not clear that regulation would improve or ruin AMT for Turkers, a number of them certainly fear it would spell ruination. Differing political and market ideologies, and tensions between individual agency and collective action present complex challenges for designers and legislators, because catering for this diversity in opinion is not an easy task. Furthermore, we are very aware that in writing this paper we tread a fine line; maybe we *should* just be leaving Turkers alone, so we want to make two things clear: (1) we believe our approach means we accurately represent the Turkers of Turker Nation; and (2) our design approach will be to support the needs and practices of Turkers that we have identified.

#### DISCUSSION: VISIBLE AND INVISIBLE WORK

In an influential article, Star and Strauss discuss notions of 'visible' and 'invisible work' [25]. They provide a means for illuminating and connecting key findings in this article so we weave this analysis into our discussion through looking at turking as a form of invisible work. Star and Strauss analyse how some actors and their activities come to be labeled as *workers*, carrying out *work*. While other activities, ostensibly sharing key work-like features are not. They argue that work cannot be defined in any elemental sense (having a core set of features) but in a relational sense: it depends on who is viewing, defining and understanding the activity. E.g., traditionally the 'work' of home-keeping was not seen *officially* as work, it sat outside the regular labour market and was viewed more like a duty and the expression of love. Star and Strauss use the terms *invisible* and *visible* work to designate whether work gets seen and recognised. Of course, this again depends on perspective: who does the activity and who does the looking, and in some ways this relates to official or dominant 'truths' versus informal or marginal understandings. Finally, along with Star and Stauss we are not recommending "*more visibility in any simple sense.*" Visibility implies recognition, official status and potentially better remuneration, but can also lead to surveillance, control and manipulation.

#### A Richer Understanding of Turkers

We have shown how some of the real people who turk orient to crowdsourcing. We are trying to redress the current balance in research which focuses more on the concerns of Requesters. We also seek to flesh out (and in some cases question) the typically quantitative analysis about users of

AMT. We have tried to make Turkers, their work and relationships with Requesters more visible *in their own terms* and to add to the rather small body of research that aims to make vivid the idea that “*Paid crowd workers are not just an API call*” [23].

In reporting our study of Turker Nation, we have elucidated the views of the posters on the work they do, the relationships with the people they work for, and the market they work in. Mainly, we focused on how they think, act and reason about turking as a job of work. In contrast to various opinions (e.g. ‘they do it for fun’ [13]) and despite the low wages, AMT, at least for the posters on Turker Nation, is clearly a labour market. This resonates well with Star and Strauss’s analysis about labeling: if turking is seen as a leisurely pursuit, it does not have to be paid like ‘real’ work, which as we have seen is something *these Turkers* strongly reject. Labeling it as fun and leisure may be a misapprehension based on insufficient information. However in the some cases [13] it seems more problematic since they ignored the results from their survey that showed pay as the most important motivation. Are they willfully ignoring the obvious?

#### Information, Opportunity and Choice

Is then the view that crowdworkers are “*perfectly happy*” to work for extremely low pay (e.g. Tim Worstall’s blog), the right one? No it is not. Equating a wage that people will accept with a wage that they are perfectly happy with is a fallacy unless they have sufficient *information, opportunity and choice*. However, as we have illustrated, information, opportunity, and choice are all rather limited. We have shown that Turkers search intensively for information not available on AMT as a means of being able to make more informed choices about AMT. Furthermore, whilst for some posters turking in itself really is a choice, for others it is less so. This is usually because opportunity and choice (and good wages) for them are restricted in other job markets, and for some, AMT operates as a *safety net*.

On AMT choice and opportunity are largely determined by experience, ratings, skills and qualifications, not to mention information. New Turkers will be more likely to accept low paid, easy work from credible requesters to increase their HIT count. Also, we see from the many ‘war stories’ on the forum that Turkers fall foul from taking chances on unknown (or even negatively rated) Requesters and HITs that turn out bad (in pay, honesty etc.). More experienced workers might even sacrifice pay to some extent if the work fits better with their requirements at that time (e.g. easy to do without requiring much concentration; a need to up reputation ratings). Pay value is also relative according to geography and HITs that are low value for US workers (e.g. \$4/hour) will be more attractive to Indian Turkers.

#### Visibility within the Labour Market

Our study shows that that these Turkers orient to AMT as a labour market and illuminates in detail how they *operate as economic actors* – working things out, understanding and

making decisions. As with traditional labour markets, the *relationship* between worker and ‘work provider’ is key. Once we start looking at the workers themselves, the idea that they are just cogs in a wheel is clearly false. Drawing again on Star and Strauss, we can see that turking fulfills a criterion of invisible work: work can be devalued or rendered invisible more easily when workers are seen as ‘non-persons.’ They go on to elucidate “*under some conditions, the act of working or the product of work is visible to both employer and employee, but the employee is invisible.*” Their example looked at how domestic servants could become invisible at times while remaining in plain sight. In turking this invisibility is made easy by distance, anonymity, minimal communication, and electronic exchange. This in turn can lead Requesters and commentators to denigrate or misapprehend the work of Turkers, or at least not to see it as *work* as the Turkers do themselves. Conversely, some of these invisible features are appreciated by the workers – the anonymity, flexibility to work when you want, for whom you want, on what HITs you want are all major incentives for working on AMT. Thus Turkers also orient to “*positive invisibility*” – the freedom from surveillance, control, and intervention in their personal affairs.

#### Market Ethics

While one might think that anonymity would undermine ethics, genuine Turkers orient strongly to fairness. A desire to do things fairly is a characteristic of the forum; as we demonstrate there is a strong community orientation to judging Requesters fairly. It is important for Requesters to understand this aspect of their workforce and realize that nurturing and supporting relationships should be highly beneficial. Even though workers aim to reach the required standard for HITs using the minimum amount of time and effort, they are typically doing so in a genuine and fair way. The ‘economy rule’ applies for this relatively low paid piecework; Turkers *optimize* – they will not spend extra time getting things just right – the pay does not merit extras. Of course, Turkers fall foul of poorly designed HITs and HIT QA so it would not be a surprise if they sometimes take advantage of loopholes when weighted in their favour – it is at least an intentional exercise of minimal power – but the major orientation is to fairness.

Since it is the genuine Turkers that genuine Requesters want to attract, relationships matter. Requesters could usefully discuss problem HITs (e.g. when they are getting many apparently spam results) with the community on forums such as Turker Nation. A general principle of anonymity does not mean a desire for no communication and cooperation: Turkers on Turker Nation share information freely and work together to understand problems, Requesters, etc. and desire a degree of visibility and appreciation of their work, capabilities, and perspectives. All sides are likely to benefit when they orient to and invest in the relationships inherent in crowdsourcing, which are rendered less visible in AMT.

### The Work to Make the Turking Work

An area of relative invisibility that our study has revealed is the work to make the turking work. This comprises the work Turkers do to find HITs, make good choices, learn and improve their skills and knowledge, and manage their AMT work. The more visible paid work is encapsulated in their HIT responses. This other, more deeply invisible work is unpaid and hidden, but it is necessary to get the best return on their turking. The forum and our examples show that quite a substantial amount of time is spent gathering information through turking and conversing to better optimize the time spent working on HITs. They share information on good and bad Requesters, pay rates per hour, how best to search, how best to monitor for good HITs being posted, what the best set up for your computer, keyboard, screen(s), browser is, how best to learn and progress at certain types of task, and how to manage turking and record keeping. These are all examples of the hidden work required to make turking work. Drawing again on Star and Strauss we can see that this work embodies classic features of invisible work – little of this effort has been rendered visible (except to the Turkers themselves) and as such, and because of the way the market works, it carries no direct monetary compensation. Instead, its value rests fully in the way it enables Turkers to operate more effectively.

### Market Governance?

Once we face the fact that crowdsourcing is just a labour market like any other, questions of regulation come to the fore and indeed some legal cases are already underway that attempt to apply traditional labour laws to this market<sup>12</sup>. However, a number of Turkers on Turker Nation are unwelcoming about regulation from outside. Rather they believe that they can regulate the marketplace themselves through concerted cooperative action by choosing what jobs to do and what pay levels to accept. They do not want someone else to make decisions on their behalf. Again this resonates with the tension between invisibility and visibility and *“how the application affects relations of power and the nature of work”*. In this case AMT as a marketplace and technology is the ‘application’ and any subsequent technical and legal adjustments could clearly affect the ‘nature of work’ and ‘power relations’.

Turkers are keen to retain their collective ability to make choices over becoming more visible and are concerned that visibility, monitoring and control would make things worse for them, or even close the market. However, it must be noted that concerted action, and making informed choices on jobs, is difficult due to the paucity of information and technical support for concerted action. For both work providers and workers to be able to make good decisions in the market, they would need very good information in order to understand the other people operating in the market such that they could price their requests or labour knowingly and

truly comparatively. This is not the case, as the AMT platform is designed to provide little information on Requesters. This gives rise to suspicion, as well as the highly motivated search for better information, e.g. through forums, blogs etc. The key purpose of Turker Nation is the search for and sharing of information, most pointedly about Requesters but also about other Turkers.

### Design Directions

What then does all this say for design? We believe this study has *ethical* and *practical* implications. Ethically we believe Turkers have sometimes been misunderstood and even denigrated. Practically, better understanding and engagement with Turkers can help design better HITs, and technologies to support Turkers and their relationships with requesters. The route taken by Irani and Silberman seems a good place to start; by helping Turkers to make better decisions within the market. Tools such as Turkopticon are first steps in this direction, but more can be done. A second complimentary approach is to design tools to support cooperation amongst Turkers so they can work together to exert more control on the functioning of the market.

Designers could also be thinking about how to create tools that make the functioning of the market more transparent, and that give better insight into communication patterns and relationships between Requesters and Turkers. Another important avenue of design is tools to help reduce and manage all the invisible background ‘work to make Turking work’ – since that is work for which Turkers are not paid but takes up a considerable amount of time.

### CONCLUSION

We have rendered some of the invisible work of Turkers visible through an ethnomethodological study of Turker Nation forum showing how Turkers reason about and carry out their work activities. Some key findings are that they treat their activities as work where pay is the most important factor and that they understand and orient to AMT as a labour marketplace. Their biggest concerns are having enough information to make good decisions on selecting jobs, having good relationships with requesters, and how to act collectively. We find that the key function of Turker Nation is to help reduce the information deficit and promote better collective action. Based on this we suggest that technology directions that should support these needs. Finally, we draw on Star and Strauss’s analysis and arguments about invisible and visible work to deepen our analysis and consider ethical issues relating to making Turkers and AMT work more visible, and what the implications of this might be.

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### REFERENCES

1. Adda, G., Sagot, B., Fort, K., Mariani, J. Crowdsourcing for Language Resource Development. *5th Language and Technology Conference*. (2011).

<sup>12</sup> <http://work3o.wordpress.com/2012/12/14/crowdflower/>

2. Antin, J. and Shaw, A. Social desirability bias and self-reports of motivation: A study of amazon mechanical turk in the us and india. *In Proc. of CHI '12*, ACM press (2012), 2925–2934.
3. Bederson, B. B. and Quinn, A. J. Web workers unite! addressing challenges of online laborers. *In Proc. CHI EA '11*. ACM (2011), 97-106.
4. Felstiner, A. *Working the crowd: employment and labor law in the crowdsourcing industry*. [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1593853](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1593853) (2011).
5. Felstiner, A. *The weakness of crowds. Limn, Crowds and Clouds (2)*, 2013. <http://limn.it/the-weakness-of-crowds/>.
6. Fort, K., Adda, G. and Bretonnel Cohen, K. Amazon Mechanical Turk: Gold Mine or Coal Mine? *Computational Linguistics*, 37, 2 (2011).
7. Garfinkel, H., *Studies in ethnomethodology*. Englewood Cliffs, N.J.: Prentice-Hall, (1967)
8. Howe, J. *Crowdsourcing: A definition*. (2006). [http://crowdsourcing.typepad.com/cs/2006/06/crowdsourcing\\_a.html](http://crowdsourcing.typepad.com/cs/2006/06/crowdsourcing_a.html)
9. Hughes, J., Randall, D., Shapiro, D. Faltering from Ethnography to Design. *In Proc of CSCW'92*. ACM (1992), 115-122
10. Ipeirotis, P. *Analyzing the Amazon Mechanical Turk marketplace*. CeDER Working Papers No. CeDER-10-04. (2010) <http://hdl.handle.net/2451/29801>
11. Ipeirotis, P. *Demographics of Mechanical Turk*. CeDER Working Papers No. CeDER-10-01. (2010) <http://hdl.handle.net/2451/29585>
12. Irani, L. and Silberman, M. S. Turkopticon: Interrupting Worker Invisibility in Amazon Mechanical Turk. *In Proc. CHI 2013*, ACM Press (2013).
13. Kaufmann, N., Schulze, T., and Veit, D. More than fun and money. Worker Motivation in Crowdsourcing – A Study on Mechanical Turk. *In Proc. Of AMCIS* (2011).
14. Kittur, A., Chi, E. H., and Suh, B. Crowdsourcing user studies with Mechanical Turk. *In Proc. of the CHI '08*. ACM, (2008), 453-456
15. Kittur, A., Smus, B. and Kraut, R. E. *CrowdForge: Crowdsourcing Complex Work*. Technical Report CMU-HCII-11-100, [http://crowdresearch.org/blog/wp-content/.../CrowdForge\\_UIST\\_2011.pdf](http://crowdresearch.org/blog/wp-content/.../CrowdForge_UIST_2011.pdf)
16. Kittur, A., Nickerson, J. V., Bernstein, M., Gerber, E., Shaw, A., Zimmerman, J., Lease, M. and Horton, J. The future of crowd work. *In Proc. of CSCW '13*, ACM press, 1301–1318.
17. Kochhar, S., Mazzochi, S., Paritosh, P. The Anatomy of a Large-Scale Human Computation Engine. HCOMP'10. ACM press (2010). 10-17
18. Little, G., Chilton, L. B., Goldman, M. and Miller, R. C. Turkit: tools for iterative tasks on mechanical turk. *In KDD-HCOMP '09*, 2009.
19. O'Neill, J. & Martin, D. Text Chat In Action. *In Proc. Group '03*, ACM Press (2003), 40-49.
20. Ross, J., Irani, L., Silberman, M. S., Zaldivar, A., and Tomlinson, B. Who are the crowdworkers?: shifting demographics in mechanical turk. *In Proc. of CHI EA '10*, ACM (2010), 2863–2872.
21. Sacks, H. *Lectures on conversation*. (2 vols). Gail Jefferson (Ed.). Oxford: Basil Blackwell, (1992).
22. Silberman, M. S. What's fair? Rational action and its residuals in an electronic market. *Unpublished manuscript*, (2010). <http://www.scribd.com/doc/86592724/Whats-Fair>
23. Silberman, M. S., Irani, L., and Ross, J. Ethics and Tactics of Professional Crowdwork. *ACM XRDS*, 17, 2 (2010)
24. Silberman, M., Ross, J., Irani, L. and Tomlinson, B. Sellers' problems in human computation markets. *In Proc. of HCOMP '10*. ACM Press (2010), 18-21.
25. Star, S.L. and Strauss, A.L. *Layers of silence, arenas of voice: The ecology of visible and invisible work*. *CSCW Journal*, 8: 9-30. (1998)
26. Suchman, L. *Plans and situated action: the problem of human-machine communication*. Cambridge: Cambridge University Press (1987)
27. Watson, R., *Analysing Practical and Professional Texts; A Naturalistic Approach*. Farnham, Surrey: Ashgate, (2009).
28. Worstall, T. *On The New York Times Stupidity over Amazon's Mechanical Turk*. Forbes. <http://www.forbes.com/sites/timworstall/2013/03/19/on-the-new-york-times-stupidity-over-amazons-mechanical-turk/>