An ethnographic study of crowdwork via Amazon Mechanical Turk in India

BY

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Dedicated to the memory of my late mentor

Dr. David Martin, 1972 – 2016

There is another kind of tablet, one
already completed and preserved inside you.
A spring overflowing its springbox. A freshness
in the center of the chest. This other intelligence
does not turn yellow or stagnate. It's fluid,
and it doesn't move from outside to inside
through the conduits of plumbing-learning.

This second knowing is a fountainhead
from within you, moving out.

Rumi's Mathnawi **IV:1960-1968**
translated by Coleman Barks

Abstract

With the growth of ubiquitous computing, it is becoming increasingly easy to carry out work from anywhere, using a simple computing device that can connect you to the internet. Governments, policy makers, not-for-profit and scientific organizations have been reaching out to members of the general public - citizens, popularly known as the 'crowd', to get their ideas, opinions and expertise on various matters. This phenomenon of using the expertise of the 'crowd' for different purposes is called 'crowdsourcing'. For sometime now businesses have been looking for new ways of saving money, beyond outsourcing, for their organizations; and have thus started reaching out to the crowd, through various platforms online to get access to a cheap, mobile workforce that is presumably available round the clock. Employing the crowd comes with massive benefits for such organisations that choose to use them: the crowd-workers serve as contractors or daily workers, who do not receive standard employee benefits such as holiday pay and insurance, as well as, pay for their own primary resources – the internet, computer, infrastructural and subsistence costs. There is also no current legislation that provides guidelines regarding such type of work, although there are quite a few researchers and advocacy groups now trying to change this.

For the workers, crowdsourcing provides opportunities to make money, get exposure towards developing skills, learning to work and see a world outside their own all thanks to growth in tele-communication technologies and unstable employment patterns around the world. And although there is a lot of discourse surrounding crowdsourcing and crowdwork, particularly due to the legal aspect of such work, not much is understood about the work and the workers. Questions about this workforce remain unanswered such as: why does the crowd choose to do this type of work, how do they find these crowdsourcing platforms and crowdsourced jobs, what do they look for in the jobs they pick, how they organized their activities (both work and non-work), what tools and technologies they used, what might their concerns be as workers, how do they relate to requesters and the work platform? This thesis

aims to provide insights into the work of crowdwork, what entails 'doing crowdwork', from the perspective of the workers who partake in crowdsourced work through online platforms. The thesis presents insights from an ethnographic study conducted in India through the summer of 2013, of crowdworkers, with a particular focus on Amazon Mechanical Turk (AMT) as the principle site for work. The naturalistic data was collected from virtual and in-person interviews as well as observations of crowdworkers in their places of work and dwelling, and analysed with an ethnomethodological orientation to data, to uncover the local methods of the workers in their own words, to provide more information about this understudied cohort.

Learning about crowdwork and the workers is important because this type of work has potential from an organizational perspective; a variety of relatively low-skilled work such as data entry processing, tagging, information verification, transcription and translation are being (and could be) crowdsourced by medium and large organisations. Hence this thesis makes contributions to the fields of human computation, CSCW, HCI and crowdsourcing by bringing forth insights into 'doing crowdwork' and 'being a crowdworker', which might help parties interested in using, applying or designing for crowdsourced work and crowdsourcing platforms, as well as, researchers and designers interested in this field.

The contributions of the thesis include:

- Uncovering the heterogeneity in the motives of turkers: what motivates workers to work on platforms like AMT, and why they choose to continue their engagement with such work and platforms.
- The features of the crowdsourcing platform: what made a platform attractive to the turkers? For instance, features such as ease of use and flexibility in choosing work, played an important role in crowdsourcing.
- The social nature of work: although crowdwork is highly individualized and atomic, the nature of work itself was very social. Most workers found that they needed help for one thing or the other

and found online resources such as forums and Facebook groups to get support or information regarding work and personal life.

- Invisible work and constant contingency management undertaken by the crowdworkers: Workers had to find and do work while managing contingencies that were created due to the opaque nature of the platform studied, AMT; requiring them to seek help externally, e.g by means of browser plug-ins, to help them work around this opacity, at the same time, creating more unpaid work for them.

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Contents

Abstract iii

Acknowledgements vi

1. Introduction 1

1.1. Research Statement 1

1.2. Aim and objectives 4

1.3. Summary of key findings 5

1.3.1. Heterogeneity in the motives of turkers 5

1.3.2. Features of 'the' platform 6

1.3.3. Discovery of 'the' platform 6

1.3.4. The social nature of turk-work 7

1.3.5. Invisible work due to AMT's opacity 7

1.4. Overview of the thesis 8

1.4.1. Contributions 11

2. Literature Review 13

2.1. Crowdsourcing 13

2.2. Platform focus – Amazon Mechanical Turk 17

2.3. Perspectives on crowdworkers 21

2.4. Addressing the gap: studying the 'work' of crowdwork 33

2.5. Summary 36

3. Methodology 38

3.1. Chapter Overview 38

3.2. Practicalities of the study 40

3.2.1. Research ethics and design of the study 40

3.2.2. Recruitment Surveys 41

3.2.3. Interviews 42

3.2.4. Observations and walk-throughs 43

3.2.5. Thematic reports 44

3.3. Ethnography (abroad and at home) 45

3.4. Ethnomethodologically-informed Ethnography 49

3.5. Ethnomethodologically-informed ethnography and systems design 54

3.6. Summary 69

4. Becoming a turker 71

4.1. Chapter Overview 72

4.2. Heterogeneity in motives 73

4.2.1. Professional development 79
4.2.2. Personal development 82
4.3. The platform and its pathways 85
4.3.1. The platform - Amazon Mechanical Turk 86
4.3.2. Pathways 94
4.4. Registering an account 101
4.5. Summary 105
5. Doing the work 107
5.1. Chapter Overview 107
5.2. Occasioning of work 112
5.2.1. Routine 112
5.2.2. Triggers 113
5.2.3. Boredom 115
5.2.4. Pre-accepted work 115
5.3. Pre-session planning & preparation 116
5.3.1. Making sense of AMT 117
5.3.2. Determining favourite tasks 121
5.3.3. Raising personal scores and obtaining qualifications 122
5.3.4. Setting work targets 123
5.3.5. Setting personal standards for turking 124
5.3.6. Using external tools for turking 125
5.3.7. Mundane ways to record and analyse information 128
5.4. Set up a workplace 130
5.4.1. Mentally prepare to turk 131
5.4.2. Physical attributes of the set up 132
5.4.3. Digital attributes of the set up 136
5.5. Determine the status of field of work 139
5.5.1. Build up a picture of the field 140
5.5.2. Establish what to do next 143
5.6. Find suitable work 148
5.6.1. Calculating suitability of HITs 149
5.6.1.1. Principal characteristics of *suitable* work 150
5.6.1.2. Secondary characteristics 161
5.6.2. Discovery pathways 167
5.7. Do task 175
5.7.1. Work the task 176

5.7.1.1. Work preview 176
5.7.1.2. Read instructions 177
5.7.1.3. Accept task 179
5.7.1.4. Complete task 180
5.7.1.5. Review task 182
5.7.1.6. Submit task 183
5.7.2. Contingencies: 185
5.7.3. Managing contingencies 192
5.7.4. Wrap up work 195
5.7.4.1. Dependencies 197
5.8. Managing payments 200
5.8.1. Getting paid by cheques 200
5.8.2. Income Withdrawing patterns 203
5.8.3. Issues with payment 205
5.8.4. Turkers' workarounds for payments 208
5.8.5. Current payment process (after the research study) 210
5.9. Summary 210
6. Implications for crowdwork 214
6.1 Informal work in India 214
6.2 So What for Design? 215
6.3 Previous design efforts 216
6.4 Design recommendations 223
6.4.1 Communication 223
6.4.2 Collaboration 228
6.4.3 Other platform improvements 231
6.5 Summary: Implications for design 236
6.6 Limitations and future work 239
7. Conclusion 244
8. References 249
9. Appendix 266
9.1 Recruitment survey design and questionnaire 266
9.2 Consent forms 281
9.3 Interview Guide 287

List of Figures

Figure 1: AMT Home Page 17
Figure 2: AMT Receipt digitization task: HIT anatomy 18
Figure 3: AMT Receipt digitization task: HIT preview 19
Figure 4: Timeline for the PhD research and thesis 39
Figure 5: Workers using AMT in their employer fields on Facebook and LinkedIn.. 74
Figure 6: Account suspension email due to name change 104
Figure 7: Workflow of turking 108
Figure 8: Screenshots at various stages of working on 'Google search' task 110
Figure 9: Copying tagline instead of 'title' as instructed in 'Google search' task 111
Figure 10: Responses filled in the response field with the added extra 'China' 111
Figure 11: Occasioning of work: attributes 112
Figure 12: Majority rules review on TO shared by Luke 120
Figure 13: Turk Alert watchlist of requesters for Luke 126
Figure 14: Turkopticon-in-action as seen through Luke's account 126
Figure 15: Luke's bookmark, showing requester / HIT ID 128
Figure 16: Snapshot of Elango's requester options in Chrome's autofill, letter 'L' . 129
Figure 17: Rahim's excel sheet of requesters 129
Figure 18: Setting up the workplace: attributes 131
Figure 19: Rahim's study room 133
Figure 20: Nidhi's PG room 134
Figure 21: Building a picture of the field of work 139
Figure 22: Repair work: possible routes to get an explanation 145
Figure 23: Finding work: calculation and discovery 148
Figure 24: Characteristics of *suitable* work 150
Figure 25: Auto-approval time of a requester shown by the use of script 153
Figure 26: Mansoor not qualified for a ToW HIT 157
Figure 27: Mansoor finds an 'invitation only' HIT 158
Figure 28: HIT gamble. Only top two submissions get paid. 160
Figure 29: Luke's email communication with a requester who had no reviews on TO 163
Figure 30: The discovery pathways (sources) of workers 168
Figure 31: Facebook group post about work 170
Figure 32: AMT built-in filter options 174
Figure 33: Attributes: Doing the work 176
Figure 34: Worker highlights (and reads out) text after task preview 178
Figure 35: Pending HITs calculator 184
Figure 36: Survey part of Pandit's attempt at a survey 187
Figure 37: First part of Pandit's task: article reading 188
Figure 38: First part of Pandit's survey tasks instructions 188
Figure 39: Second part of Pandit's survey tasks instructions 189
Figure 40: Pandit's AMT stopped loading, due to loss of internet 190
Figure 41: Wrapping up work: attributes 196
Figure 42: Flow diagram of 'withdrawal of income' 202

List of Tables

Table 1: Summary: Communication recommendations 228
Table 2: Summary: Collaboration recommendations..... 231
Table 3: Summary: platform improvement recommendations 236

1. Introduction

1.1. Research Statement

Crowdsourcing became a popular term after Jeff Howe first used it in 2006. According to him "Crowdsourcing is the practice of obtaining needed services, ideas, or content by soliciting contributions from a large group of people, especially from an online community, rather than from traditional employees or suppliers. Often used to subdivide tedious work or to fund-raise start-up companies and charities, this process can occur both online and offline."

A crowdsourcer could be anyone who needs help with a job or project – a small company, a large corporation or an individual. A crowdworker is anyone who works on the job or participates in finding or creating a solution for the crowdsourcer. A platform connects the crowdsourcer and worker through an online medium. These organisations may or may not charge users for its content or services, but have been relying on a crowd situated globally to create, share, review and use content.

This thesis focusses on crowdwork which is considered to be a new form of labour. It is popular with crowdsourcers for various reasons such as for its swiftness and inexpensiveness to deliver work; and it is liked and used by crowdworkers as they can use it to make money online. There are many platforms that employ this form of 'paid' crowdsourcing. For instance, Upwork[1] (formerly Elance-Odesk, rebranded to Upwork in 2015) is a crowdsourcing platform that connects freelance professionals with businesses that require their services. The jobs provided in this platform vary from web and mobile software development, engineering or accounting to creative design and writing or data science and analytics. Samasource[2] uses its platform SamaHub, to connect unemployed people in impoverished countries to find digital micro work. The jobs they do include tasks in the area of machine

[1] www.upwork.com
[2] www.samasource.org

learning, data, image or content services such as image annotation & annotation, data enrichment, sentiment analysis, content digitization etc.

This thesis focuses on such microwork, particularly, issued through the platform Amazon Mechanical Turk[3] (AMT) as it is the largest and most popular, microwork based platform. AMT is also the most studied platform due to easy access to the platform and the workers who use it. This thesis focuses primarily on the crowdworkers who use AMT, in this case called the 'turkers', who are a very important part of the organisation of crowdsourcing. The largest population of workers on AMT is that of the American workers, and the second largest is that of Indians, which makes them both interesting communities to study. There is limited research about them, and that there is, takes various perspectives than that of the workers, in-situ.

Existing research such as Martin et al. (2014) have looked at primarily American turkers by analysing forum posts on the turk-related forum, Turker Nation to provide insights about into their work situations. Ross (2010) and Ipeirotis (2010) conducted surveys to get an insight into the demographics, composition and distribution of the workers on AMT. Silberman and Irani et al. (2010) take an ethical standpoint on crowdwork and through their research point to some of the issues faced by turkers, who are marginalised. Felsteiner (2011) provides a legal standpoint towards crowdwork, by providing insights into the legally disenfranchised workers, and the legal ambiguities surrounding crowdwork and AMT. Cherry (2009, 2010) explores the unique challenges virtual online labour poses such as unconscious bias in hiring, virtual industrial actions, minimum wage for microtasks and so on. Kazai et al. (2011) and Gadiraju et al. (2015) discuss methods for quality control of the crowd's output and weed out turkers who seem to scam and deliberately sabotage the system. Kittur et al.'s (2013) work reflects on how crowdwork might be developed technologically and organisationally to make it desirable and productive for all parties involved.

As stated above, **existing research has focussed on many disciplines such as ethics, law and design, but the study of work itself has been missing from**

[3] www.mturk.com

this literature. Crowdwork operates between a few grey areas, legally, ethically and operationally, and thus making the work visible and gaining some understanding of it is necessary. Moreover, the underlying work practices are not apparent and thus assumptions have been made about turkers' work. Silberman & Irani (2010, 2013), Martin et al. (2014) point to the requirement of understanding the crowdworker to be able to understand the phenomenon of crowdsourcing better, and to be able to design better systems to support their work, yet there have been no ethnographic studies of the lived work of turking. **This thesis focuses on crowdwork, especially from the perspective of Indian turkers who practice the work of turking.** And, through an ethnographic study of turkers, this work of crowdwork, that is currently invisible, is explicated and brought to the surface. **This thesis will also discuss whether the current representations of the workers are adequate to get an understanding of the work or of the crowdworkers, through a review of literature and discourse, discussion of its adequacy.**

AMT presents an interesting case to study, as thousands of low-skilled microtasks are posted on it every day, and thousands of workers use the platform to do piecework and get paid. The workers who turk identify themselves as 'turkers' and use AMT as their primary crowdsourcing platform. By studying the workers in-situ, this research provides an understanding of the practical accomplishments of crowdwork, which have rarely been studied. In addition, studying turking from the perspective of the workers will provide insights into the work practices and organisation of crowdwork as it happens, on the ground, in real time.

Some of the key questions this research tries to answer pertains to turkers' own perspective of crowdwork, why they do this type of work, also shedding light on the nature of work that crowdsourcing platforms offer, and how workers find a suitable platform and subsequently suitable work. The research also explores what this work meant to turkers and their social network, their expectations from the job, platform and employers, and more importantly, the **unrecognised, 'invisible' efforts** that turkers put in to doing this work. Finally, the thesis discusses what this means for design, and how can we, as a community that cares about 'work' and 'systems design' in the broad fields of

HCI and CSCW, better design a crowdsourcing platform or related services to support crowdwork.

1.2. Aim and objectives

This thesis provides an **understanding of the lived work of turking, as made visible by Indian turkers.** From the many perspectives the existing literature takes, the view of the worker is missing. This is one of the key issues addressed by this research – surfacing the members' perspective. The study's data was collected using ethnographic methods through interviews, observations and online digital content, which was naturalistic, providing a rich and nuanced description of the turkers' work, and their understandings of that work. The use of ethnography for gathering data is highly appropriate here, as it helps in providing an understanding of the social phenomena at play, in their local circumstances. It helps in providing a deeper understanding of what 'work' meant to turkers, their work practices, the social organisation of work and personal lives, and how they intersected.

The core research questions investigated in this thesis include:

- who the workers are, their broad demographics, skills and capabilities, and their understanding of the phenomenon of crowdsourcing.
- where the workers work from, what infrastructure and technologies they use, the physical and social space and the resources, costs and investments made.
- what motivates the workers to turk, the issues they face, the ways they resolve these issues, and the social, organizational and technological aspect of this.
- how do workers find, organize and do 'the' (suitable) platform and 'the' work, the process of searching, learning, active task completion and getting paid as experienced by the workers.
- how the workers organized their work life around their personal lives, and the place it had in their everyday mundane sense.
- what are the individual and social implications of this type of work, on all the parties included in this type of work.

Systems design has a long tradition of shaping systems first hand, through the use of ethnographic data. For this purpose, it is crucial to understand the details of the work of turking, and the view of the workers to be able to design better systems for them.

Following this tradition, **this research also aims to inform design to support end-users, the turkers, as well as, the other communities with different interests in crowdsourcing** such as the platforms, the work-requesters, academics, researchers etc. Some implications for design for stakeholders who are interested in exploiting the crowd or the crowd platforms have been provided in Chapter 6. These include:

- Functional requirements that can be added to a platform, such as building a rich worker profile, and providing more information about the individual tasks, their requesters, and the goings-on of the whole platform.
- Usability and infrastructural requirements such as supporting mobile notifications and making tasks cross-platform friendly.
- Supporting the key requirement of 'collaboration' and 'communication' via the platform, and raising questions about the existing features of the platforms.

1.3. Summary of key findings

This section reports on some of the key findings that emerged from the research, providing a flavour of some of the key analytic messages that have been provided in the later findings chapters 4 & 5.

1.3.1. Heterogeneity in the motives of turkers

Researchers have been trying to understand what motivates workers to work on platforms like AMT. A number of surveys have been conducted for this purpose, and the primary motivation to turk have been found to be 'to make

money'. The ethnographic study showed that this was not a homogenous motive and turkers usually had more than one reason to turk, and some of these were: 1) to get a salary 2) to do a job 3) for timepass 4) to get a supplementary income. Once turkers started turking they found the experience rewarding in many other ways, making their engagement with crowdsourcing fruitful, motivating them to continue this type of work. The benefits or value of turking were found to be: 1) self-sufficiency 2) skill and competence development 3) learning something new 4) job satisfaction. What made turking rewarding was that turkers were able to reap these benefits without having to leave the comfort of their house or having to go through the tedious procedures and politics of formal employment workplaces.

1.3.2. Features of 'the' platform

The platform played a very important role in making turking attractive to the turkers. The work was hosted online, and turkers could work from a location of their choice, either on mobile devices, desktops or laptops, making it highly accessible. AMT offered turkers the flexibility of choosing their own work hours and setting monetary and work-related targets as per their requirements. AMT afforded turkers autonomy, the ability to work full-time, part-time or sporadically or even completely stop working, without having to follow any workplace procedures. The study found a variation in expertise and earning power of turkers that turned around factors like English and computer literacy, technology and infrastructure.

1.3.3. Discovery of 'the' platform

Turkers found platforms through three major ways: 1) self-search on search engines, 2) word of mouth from friends and family, and, 3) sellers of information and training. Chapter 4 explains these 'pathways' in detail. It also shows the close, small social networks formed as a result of finding a common platform of work, and the manifold ways in which the workers support each other.

1.3.4. The social nature of turk-work

Turking was surprisingly a social platform, which functioned on collaboration built outside the platform. Turkers used online resources such as forums and Facebook groups where other turkers engage in active conversation, or had left information in the form of forum threads and comments to learn about turking and any related issues. Turkers were sometimes even part of small social communities where they could discuss turk-work, requesters (people who post jobs on AMT) and even personal life situations. Members of turkers' family and friends also played a role in crowdwork as helpers, stress-relievers or moral supporters.

1.3.5. Invisible work due to AMT's opacity

Due to the nature and design of AMT, it provides very little information about how it functions and turkers have to constantly work in the dark. Turkers faced issues in finding stable work from good requesters. Furthermore, AMT was found to be inadequate in providing quick and useful support to workers, and so, turkers invoked additional help in the form of scripts and browser plug-ins to help them workaround this opacity. This led to extra work on the part of the turkers, which wasn't recognised as 'work' per se. This 'invisible work' also needed to be organised, and was crucial for turking, as it got turkers through searching for good work and requester, and at being good at turking.

Turkers had to constantly manage contingencies that presented during work due to information or infrastructure failure. Turkers collaborated with each other to solve issues that emerged as a result of this – by knowledge and infrastructure sharing, supporting learning and job search.

1.4. Overview of the thesis

This section provides a brief overview of the ensuing chapters in the thesis. It also lists the academic and industry contributions that were a result of this work.

- **Literature Review**

Chapter 2 of this thesis, Literature Review, describes the existing research and literature in the paid crowdsourcing area, specifically, those using crowdsourcing platforms to get piece-work done such as Amazon Mechanical Turk, Odesk or Freelancer. The chapter also positions this research in the area of paid crowdsourcing through microtasks, by showing what is missing in the existing literature – namely a rich description of the work of crowdwork.

For this purpose, the chapter firstly provides a brief definition of what crowdsourcing is. The chapter also offers a detailed description of the area that this research covers - paid crowdsourcing through microtasks. Next, it provides an overview of the different platforms that exist in this space, and the features of Amazon Mechanical Turk that made it suitable for this research. After that, the chapter describes the different perspectives the existing literature takes in describing the work of crowdwork and its workers. Subsequently showing that literature on the study of work collected using ethnographic methods is missing in the community. Finally concluding, by stating how this research has addressed the gap in the literature through the study of crowdworkers in India using ethnographic methods.

- **Methodology**

Chapter 3 of this thesis, Methodology, covers these main items: 1) the practicalities of the fieldwork undertaken 2) why ethnography was appropriate for the study 3) why the data was analysed using an ethnomethodological approach 4) the role of ethnography in systems design. The fieldwork took place in India over a period of 6 months, studying the workers who used

Amazon Mechanical Turk as their primary crowdsourcing platform. The study used ethnographic methods such as interviews and in-situ observations to study the work practices employed by the workers to be able to provide a rich description of crowdwork in India. The data was analysed using an ethnomethodological perspective to convey the analytic message using the member's perspective, in this case, the crowdworkers. The ethnomethodological approach takes into account the 'ordinary and mundane things that people do and how they do them as a social enterprise' providing for cooperation and collaboration in their work, that otherwise seems to be absent.

- **Study of crowdwork**

The findings from the study have been compiled into two major chapters, namely, 1) the career of a turker, and, 2) doing the work. These chapters describe how turkers organise, perform and manage their work, as the workers explained during data collection.

Chapter 4 - Career of a turker

The career of a turker describes why turkers start doing turk-work, their reasoning and motivations. It then explains why turkers decide to stick with turking and continue their engagement with it, and the perceived values turkers feel they get from turking. The chapter describes how turkers are introduced to turking and AMT, and the role of 'others' in this process. It also discusses the support network of turkers, and how this network comes together to help turkers with their work. It describes the rhythms of crowdwork and how turkers turk alongside managing their personal lives. In describing these, the chapter unpacks the key characteristics of the platform that make it attractive for the turkers and also explain how turking changes over time for the turkers.

Chapter 5 - Doing the work

This chapter describes how turkers search for work, and how their personal circumstances and preferences influence this search. It elaborates on the planning and preparation that goes prior to the actual job is done. It also describes the process or workflow of crowdwork that occasions the work, the

preparations that go into physically and mentally setting up the workplace, determining what to do on a particular turk-work day, looking for work and finally doing it. It then describes the payment mechanisms, the practices turkers follow to get the earnings they made from turking to their pockets, and the issues turkers face to get paid. In describing these, the chapters unpack the positive and negative features of this type of work as experienced by the turkers; and also unpack the features of crowdwork that show turking is contingent upon factors that need to be constantly monitored, which may not be under a turker's control.

- **Implications for design**

This chapter has two major parts. First, it reflects on the existing literature in crowdsourcing and how the data from the study provides an insight into the adequacy of this literature in understanding crowdwork, and second, what this means for design. The chapter presents some technology-based design suggestions based on my findings to support these issues faced by the turkers.

Previous interventions and discussion

This section provides reflection on some fundamental issues with the organisational model of crowdsourced work, such as the perception of turkers as a homogenous group of workers performing low-skilled mundane tasks; or turking designed as a one-to-one, piecework market where turkers worked and provided services anonymously, and in isolation. The chapter also explores how turkers appropriate technology and information to manage their endeavours and actually perform their tasks, in real-time. It also looks at the impact previously mentioned design implications would make in the development of systems, if built to support the work of crowdwork.

Design recommendations

The discussion then leads to implications for design. As goes with the nature of such studies, the research seek to inform designers of the structure and organisation of ordinary activities in crowdwork, to incorporate them into design to help designers build better crowdsourcing systems. At the moment, research prescribes technology to support requesters in task creation and

quality control of the output they receive from workers. Some design exists to support workers, such as Turkopticon[4], which has been helping turkers rate requesters and review them, for the benefit of the larger turker community. But there is very limited design support for the 'work of crowdwork', and hence, this area is ripe for design and technological support. The key areas where turkers need support is in: 1) finding suitable work and making sense of it 2) building trust and assessing requester candidates 3) making sense of the job market and its functioning 4) infrastructure failure.

This section can be used as a set of requirement guidelines by designers and engineers, to help turkers by supporting turk-work and design better systems for them. This section can also be used as a foundation for the research community in general for further research work.

1.4.1. Contributions

During the course of this research, I have published a few papers in academic conferences, presented and organised at different workshops based on crowdsourced work. I have also presented at some industry conferences interested in crowdsourcing. Given below is a list:

1. Invited for a workshop on 'Decent work in the on-demand economy' at the ILO, Geneva, CH. September 22-23 2016.
2. Gadiraju, U, Gupta, N. Dealing with Sub-optimal crowdwork: Implications of current quality control practices. Presented at the Crowd Dynamics workshop at ACM CHI'16 conference, San Jose, California, USA, May 7-12, 2016.
3. Co-organised Workshop 'Crowd Dynamics: Exploring Conflicts and Contradictions in Crowdsourcing' at ACM CHI'16 conference, San Jose, California, USA, May 7-12, 2016. http://crowddynamics.blogs.dsv.su.se/
4. Martin, D., O'Neill, J., Gupta, N., Hanrahan, B. (2016) Turking in a global labour market. Published in The Journal of Computer Supported Cooperative Work. JCSCW 2016, 25, pages 39–77.

[4] https://turkopticon.ucsd.edu/

5. Co-organised Workshop ‘Toward a typology of participation in crowd work’ at 19th ACM conference on CSCW 2016, San Francisco, California, USA, February 27 – March 2, 2016. http://ttpcw.blogs.dsv.su.se. Proceedings published in the Vol. 13 Iss. 1 (2016) of the International Reports on Socio-Informatics (ISRI)
6. Attended and presented at the ‘Evaluation in the Crowd: Crowdsourcing and Human-Centred Experiments’ seminar, Wadern, Germany, November 22 – 27 , 2015. Dagstuhl Seminar 15481 (culminating in a book chapter about crowdwork by Springer in 2017).
7. Gupta, N., Game-playing in crowdsourced low-skill employment. Participated in the ACM CHI Play 2015 Workshop ‘Interdisciplinary Reflections on Games and Human Values’ (2015) London, England, 4-7 October 2015.
8. Aitamurto, T., Anya, O., Carletti, L., Gupta, N., Hansson, K., Lindman, J., and Nonnecke, B., (2015) ‘Examining the Essence of the Crowds: Motivations, Roles and Identities’ - Co-organised and presented at the workshop. In the Proceedings of ECSCW’15 (2015) Oslo, Norway,19-23 September 2015.
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10. Gupta, N., Martin, D., Hanrahan, B. J., O’Neill, J., (2014) Turk-Life in India. In the Proceedings of Group’14 (2014) Sanibel Island, Florida, USA, 9-12 November 2014.
11. Presenting “Why turk?” at industry conference BrightonSEO, Brighton, UK, April 23 2014.
12. Martin, D., Hanrahan, B. J., O’Neill, J., Gupta, N., (2014) Being a Turker. In Proc of CSCW'14 (2014) Baltimore, Maryland, USA, 15-19 February 2014.
13. Gupta, N., Crabtree, A., Rodden, T., Martin, D., O’Neill, J., (2014) Understanding Indian crowdworkers. Presented in workshop ‘Back to the Future of Organizational Work: Crowdsourcing and Digital Work Marketplaces’ in CSCW'14 (2014) Baltimore, Maryland, USA, 15-19 February 2014.

2. Literature Review

2.1. Crowdsourcing

Two decades ago people in the U.S. worked from home in various industries like wholesale and retail trade, marketing and sales jobs, clerical work, crafts, finance, insurance, real estate, agricultural products, education, social services (child care) etc. This labour force was made up of predominantly women with young children, self-employed workers and included temporary help agencies (temps), contractors, on-call workers and day labourers. Majority of the workers were wage-earners and piece rate workers (Masuo et al., 1992, Hudson, 1999). This industry was growing due to the dropping prices of computer and telecommunications equipment. In the late 90s, in the U.S., 1 out of 3 women and 1 out of 4 men used to "work from home" or do "non-standard jobs" (ibid.). Most of the home workers were between 35 and 44 years old, but it was very appealing to over 55 year old people as well. The average number of work hours per week was 36.9, with an average net income of $17,921.38 p.a. and an average experience of over 9 years in this line of work. The motivation for work was generally – "economic reasons, to have more flexible schedules or to allow people to care for their children or family members; and personal reasons (the desire to seek training or education).

A decade or two later, the picture of non-standard employment is still grim. Crowdsourcing platforms are also frowned upon for the very same reasons: for being cheap and quick, which doesn't really allow for any real interaction or relationship to develop between the parties involved. Morozov, in his article on the sharing economy platforms says that the lobbyists of the sharing economy paint a picture of an optimistic, utopian tale of the phenomenon, and although they manage to function by 'relying on more effective distribution of existing resources', the sharing economy turns the crowd into 'perpetual hustlers' in a global market (Morozov, The Guardian, 2014). Correlating crowdworking with traditional Marxist labour perspectives Bergvall-Kårebor & Howcroft (2014) and Fuchs (2014) discuss the commodification of labour, contemporary

capitalism and globalisation, and how a positive, celebratory view of crowdsourcing presents itself as an opportunity to create this workforce of on-demand, knowledge economy workers (Bergvall-Kårebor & Howcroft, 2014, Fuchs 2014).

Eric Von Hippel said, "This (crowdsourcing) is really the biggest paradigm shift in innovation since the Industrial Revolution". Crowdsourcing is a diverse phenomenon that is widespread across many countries, industries and business models. Crowdsourcing has also become popular in light of growth of platforms in the on-demand economy or the sharing economy such as Uber – a platform for hiring and sharing a ride, and Airbnb – a platform for finding alternative accommodation (Duchman, 2015). Crowdsourcing as an industry paints a complex picture for obvious reasons: it is distributed, in its nascent stages yet constantly evolving and growing, said an NPR article (Kaufman, 2008).

To provide a little taster of the crowdsourcing diversity: there are platforms that are country-specific, which offer jobs that require standard digital skills and as well as tasks which are opinion or advice-based; for instance, there is the Chinese platform - Zhubajie[5], which has a diverse market open to China and the US with over seven million users using the platform, or the many growing Japanese platforms Crowdworks[6], Lancers[7] and Coconala[8] (Witmart, 2015, Corbin, 2014). There are also online freelance markets which are industry-specific, such as rentacoder and 99tests for finding software professionals, userfarm and poptent for video production, 99designs for all types of design-based content. Crowdsourcing also employs voluntary, non-monetary participation from the crowd; such as in citizen science, journalism or citizen participation projects e.g. Galaxy Zoo, reCaptcha, Indian Rupee Symbol design and so on. Crowdsourcing also takes the form of open innovation R&D, creative idea or design contests, for instance, Innocentive and IBM Innovation Jam; as well as tapping the crowd for funding of creative, charitable or hardship causes through platforms like Kickstarter and Indiegogo.

[5] http://www.witmart.com/cn/ or http://int.zbj.com/
[6] http://crowdworks.jp/
[7] http://www.lancers.jp/
[8] http://coconala.com/

Now, we bring the focus onto platforms that employ paid crowdsourcing, such as, Upwork: (formerly Elance-Odesk, rebranded to Upwork in 2015), is a crowdsourcing platform that connects freelance professionals with businesses that require their services. The jobs provided on this platform vary from web and mobile software development, engineering or accounting to creative design and writing or data science and analytics. Another platform, Samasource, uses its platform SamaHub, to connect unemployed people across nine impoverished and developing countries to find digital micro work. The jobs they do include tasks in the area of machine learning, data, image or content services such as image annotation & annotation, data enrichment, sentiment analysis, content digitization etc. Tagasauris provides a photo library service, and Castingwords provides audio transcription services to clients, and has now expanded its use of Mechanical Turk to editing, marketing and proofreading. Companies like Castingwords, Tagasauris and Samasource have partnered with AMT to provide business solutions.

The World Bank report on *The global opportunity in online outsourcing* (World Bank, 2015) states that "Online outsourcing (OO) has become a promising alternative to traditional employment in today's digital era. It has transformed where, when, and how work is performed. For employers, OO provides broader access to specialized skills, more flexible and faster hiring processes, and 24-hour productivity. For workers, this form of outsourcing has created new opportunities to access and compete in global job markets, from anywhere at any time, as long as they have computer and Internet access". They recognise two segments of OO as microwork and online freelancing, the difference between the two being: the size and complexity of the tasks, and remuneration offered. Although very difficult, due to unavailability of much public data and the nascent state of the OO industry, the World Bank report estimates "the gross service revenue within the OO industry was about $2 billion in 2013, with 48 million registered OO workers, 10% of whom are considered to be active."

Although certainly providing opportunities of many kinds, Graham and Martin et al. criticize microwork platforms like Upwork, AMT and even Samasource (not for profit organization), as they undermine labour rights and operate in a

largely unregulated manner, which have serious repercussions on the market as a whole, such as driving down task prices (Graham, 2015, Martin et al., 2016). In an interview with Fish and Srinivasan, Janah, the founder of Samasource, argued that Samasource provides work that is simple, clerical, yet dignified (Fish & Srinivasan, 2011). Janah further said that it was easy to be critical of the platform for the fear of creating a 'global class of secretaries', but she believes that such an argument would be futile, since using the crowd is a global pervasive phenomenon, and the crowd labour actually promotes dignity of labour and brings empowerment in a poor society (Fish & Srinivasan, 2011).

This thesis particularly examines labour-based crowdwork that follows a 'paid' crowdsourcing model, such as through the use of platforms like Upwork and Amazon Mechanical Turk (AMT). Companies that deal in online freelance work, non-microwork-based, such as Upwork and Freelancer are estimated to be ten times larger than the microwork-based market, which is dominated by two firms: Amazon Mechanical Turk and CrowdFlower, that are estimated to form 80 percent of the microwork market and have a combined annual global gross services revenue of about $120 million, with estimated growth to reach $0.4 billion in 2016 (World Bank, 2015). Platforms like AMT and CrowdFlower deal in what are called microtasks - the types of tasks that are "very low paid, mostly available in high volume, can be completed in very short bursts of time and are generally heavily automated", e.g. finding email addresses or translating a given text into another language (Frei, 2009, Bratvold, 2011).

This thesis explains what working on these microtasks entails for workers, the features of the platform that support or do not support the work, and how the workers manage to do this type of work as a part of their everyday life. This research addresses the participant's, in this case - the crowdworkers, perspective on crowdwork, where the dominant platform of use is Amazon Mechanical Turk. The next section explains more about the platform.

2.2. Platform focus – Amazon Mechanical Turk

The investigations for this research are based upon Amazon Mechanical Turk (AMT) as it is one of the largest and most popular microtasking platform open to the world market[9]; as described by its founder, "Work traditionally done by an in-house unit can be performed by a distributed group of Internet users, at their own convenience and for little cost" (MIT, 2006). AMT's basic philosophy is to delegate tasks that are difficult for computers to do, to a human workforce in the form of many, often similar, pieces of tasks. Task results produced by workers can be directly invoked back into the programme the requesters were working on by means of an API call, making workflow simple for requesters.



Figure 1: AMT Home Page

The crowd of workers who produce work recognise themselves as 'turkers' (Martin et al., 2014) and the sourcers or employers who demand work are called requesters. Common tasks on the platform include image tagging, form filling, duplicates recognition, text digitization, translation, transcription,

[9] AMT has been restricting membership to non-US workers over the past couple of years

object classification, and content generation. These tasks come in the form of a HIT – a Human Intelligence Task – which take between a few seconds or minutes to complete and are paid at a few cents at a time, at the requesters' discretion. The anatomy of a HIT is as shown in figure 2: beginning with title of the HIT, name of the Requester, Keywords added to the HIT to make it searchable, details of Qualification asked for by the requester, HIT expiration date, Time allotted for the completion of the task, Reward amount for the task and a 'View a HIT in this group' to preview the HIT. The preview gives the worker the option to 'accept' the HIT or 'skip' it and has a 'timer' in place ready to roll. AMT places itself on the outside of the phenomenon of crowdsourcing and portrays itself as a facilitator and platform provider for requesters and turkers to find each other.

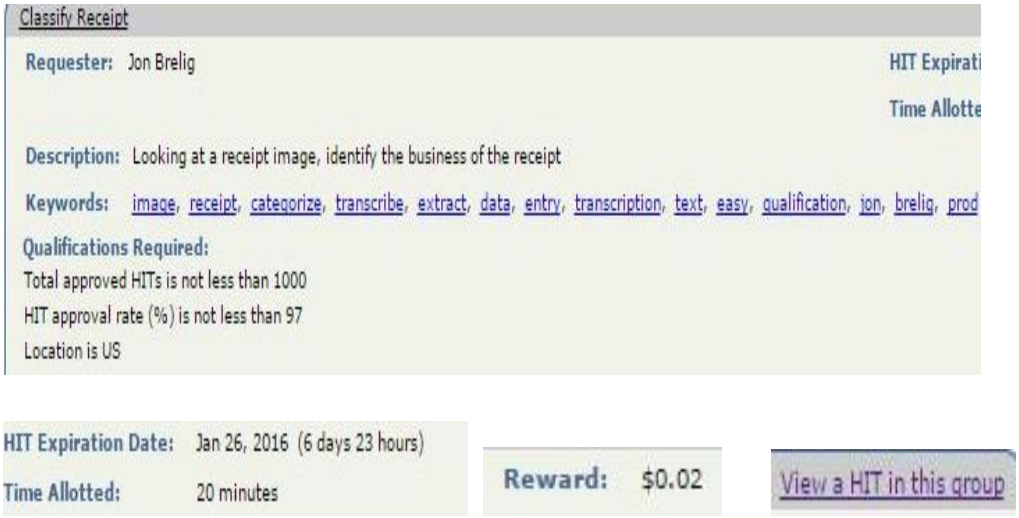
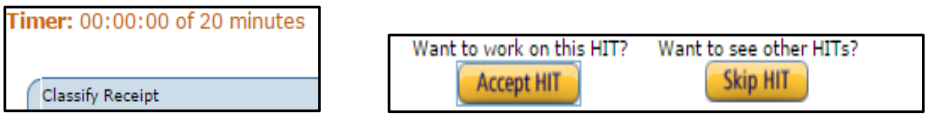


Figure 2: AMT Receipt digitization task: HIT anatomy



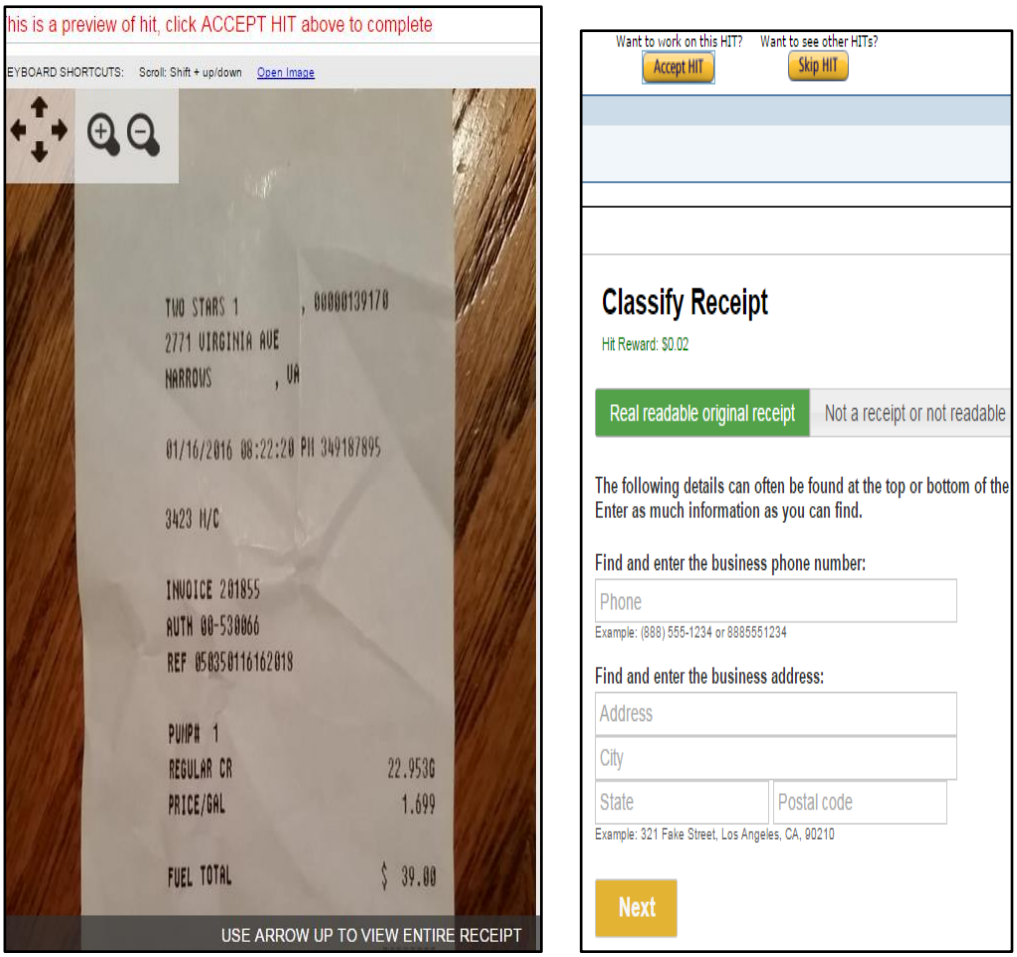


Figure 3: AMT Receipt digitization task: HIT preview

This draws an interesting parallel between AMT and other sharing economy based platforms such as Uber and Lyft (Ahmed et.al, 2016), which also position themselves as facilitators and platform providers between customers and drivers, who are considered to be independent contractors or micro-entrepreneurs. Workers on these crowdsourcing platforms can be said to be in direct competition with one another, as opposed to conventional workplaces where division of labour and competition is mediated and comes through the management (Beerepoot et al., 2015, Martin et al., 2016). Bergvall-Kårebor & Howcroft (2014) discuss Amazon Mechanical Turk in the historical and evolutionary context of Amazon, the online retailer giant. They point out how Amazon is able to exploit 'serendipitous developments' such as AMT, and succeed in its ventures through a 'combination of technology, firm strategy,

regulatory context, socio-economic climate and working conditions' through a combined (ibid).

Crowdsourcing is a disruptive form of labour; and AMT crosses international borders through its platform, while operating in a legal grey area; and its effects are borne utmost by the workers who use the platform without any legal protections or worker benefits offered to regular employees. Turkers are concentrated in the USA and India primarily; Indians being the second largest population on AMT, probably due to the fact that AMT pays in money in these countries, whereas in other regions it pays by Amazon vouchers (Ross, 2010, Ipeirotis, 2010). Hence, learning about AMT through the experiences of international workers makes for an interesting research problem. AMT is also marred in controversies regarding the ethics and fair pay for its workers (Irani, 2013, Martin, 2014). As the Salon article points out the important benefits of using platforms like AMT are that they are dirt-cheap and quick; they allow companies to divide projects into small chunks (microtasks) and put them online for hundreds of thousands of people to do; paying them in tens, where they used to pay in thousands of dollars using contractors and temps (Salon, 2006).

The tasks on AMT do not require highly skilled labour, but a basic understanding of English and computer operating skills. These tasks essentially produce, process and organize data that's available on the internet. Some examples of HITs found on AMT include: digitization of data e.g. entering data from uploaded copy of receipts or business cards or other documents into a form designed by the requester, see Figure 2 and 3; checking addresses or any other type of details of businesses; tagging pictures and annotating video or audio clips or other content; surveys; writing product reviews; transcriptions or translations. Gadiraju et al. (2014) provide a classification of the categories of tasks that appear on micro-tasking platforms like AMT and CrowdFlower e.g., information finding, verification and validation, content creation, surveys and so on. Turkers get paid if the work they have completed is upto the satisfaction of the requesters. The money stays in their AMT account and turkers withdraw it when they need it.

Details on how this work takes place, from the perspective of Indian workers, are provided in the chapter 5 'Doing the work', of this thesis. The next two sections describe in detail the different literature that exists in microtask-based crowdsourcing, and, why it is crucial to understand the work of crowdwork, the tradition of work-practice studies this thesis follows. The literature on crowdwork is distributed into 3 categories: (1) journalistic articles as in the news and print media, (2) reports by advocacy, activist or business organisations, and, (3) academic articles – by members of the research and design community. To give a well-rounded view of this space, the next section reviews all three categories of literature, with a primary focus on the academic articles.

2.3. Perspectives on crowdworkers

Smart et al. (2014) suggest that Amazon Mechanical Turk is an exemplar of a social machine based on "traditional production processes", providing a crowdsourced labor market for simple data collection and processing tasks. They provide descriptions and classification of the 'social machines' in their article, and their view suggests that social machines are web-based socio-technical systems, (rather than technical systems alone). In the computer science community, the concept of 'social machines' was introduced by Berners-Lee and Fischetti and used in the Semantic web context (Hendler & Berners-Lee, 2009), as defined here:

> Real life is and must be full of all kinds of social constraint – the very processes from which society arises. Computers can help if we use them to create abstract social machines on the Web: processes in which the people do the creative work and the machine does the administration. . . The stage is set for an evolutionary growth of new social engines. The ability to create new forms of social process would be given to the world at large, and development would be rapid. (Berners-Lee and Fischetti 1999, pp. 172–175)

Jeff Bezos, the founder of Amazon, in his talk at MIT introduced AMT, as 'people as a service', where one can create a subroutine or API call, invoke a human to get a job done (MIT, 2006). He presented workers on AMT as an

internet scale workforce and a marketplace for human intelligence, "Mechanical Turk makes it possible for you to encode human intelligence inside a software application, and to do it in very small units, as microwork. So for a penny you might pay someone to tell you if there is a human in the photo" (MIT, 2006). It reverses the role of computers and humans. The AMT website[10] uses the tagline 'artificial artificial intelligence' to describe their philosophy. As prescribed by the AWS website[11], "Amazon Mechanical Turk is a web service that provides an on-demand, scalable, human workforce to complete jobs that humans can do better than computers, for example, recognizing objects in photos." And thus, when the computer has a task that is easy for a human to perform but hard for the computer, it would call a human to perform the function. Work traditionally done by employees would be performed by a group of internet users, globally distributed, at their own convenience; and at little cost for the employers or clients (MIT, 2006).

With this introduction to a platform, AMT caught the attention of the news media as well, and the web got filled with 'one day as a turker' experiences, generally, ending in the same conclusion: by working on mindless, boring jobs on AMT, one can hardly make any money, 'this isn't for me', or the big one - why would anyone do it (Elish, 2010, Cushing, 2012, 2013, Wilson, 2013, Bigham, 2014, Hamm, 2014, Tariq, 2015). These experiences gave journalists an insight into and appreciation of the actual 'work' of crowdwork, but that hardly answered questions about the inner workings of the worker cohort.

The research community was intrigued by the phenomenon as well, and wanted to understand who the workers of these platforms were, which led to many quantitative studies and surveys. Many of the quantitative studies available were conducted on AMT. The early works in this area were of Ross et al. and Ipeirotis, (Ipeirotis, 2008, 2010, Ross et al.[12], 2010) who conducted survey-based demographic studies to get an overview of who the turkers were – their age, location, education, earnings from turk etc. The results suggested

[10] Mturk.com
[11] http://docs.aws.amazon.com/AWSMechTurk/latest/AWSMturkAPI/Welcome.html
[12] The early surveys conducted by the researchers are now said to be outdated due to change in demographics, bias due to pay, and knowledge of the numbers of potentially 'active workers'. (Silberman et al.'s Medium article, 2016).

that the majority of Turkers (56%) were U.S. based, and the second largest population was of Indian Turkers (36%). The workers were generally between 21-25 year olds, predominantly male, working to earn money or kill time, from the comfort of their homes. A small percentage of turkers were from countries like Canada, the U.K., European countries and the Philippines. Interestingly, the Indian turkers' population seemed to be of an average age of around 26-28 years old, mostly male, more educated (with bachelor or graduate degrees) and almost 27% of Indian Turkers reported that they used AMT sometimes or always 'to make basic ends meet,' compared to around 14% of U.S. Turkers. Indian Turkers on average earned $1.58/hour on AMT, as opposed to $2.30/hour on average for US Turkers as of Nov. 2009. One-third of the survey respondents had a median annual income of less than $10,000 (Ross et.al, 2010) and over 50% of the Indian Turkers reported earning an annual income of less than $10,000 (Ipeirotis, 2010).

A handful of studies have been conducted on platforms other than AMT, for instance, Berg's study (Berg, 2016) that compares workers of AMT from India and the US to workers of the platform CrowdFlower, and discussed workers with respect to their education, tenure as crowdworkers, reasons for crowdworking and provides discourse on the rhetoric of crowdwork as pin money, financial security and unfair treatment from requesters and platforms. Hirth et al. (2011) studied the demographics of the Microworkers platform, and investigated the parties involved in the platform - the workers, the employers and the platform, and explored what the well-paid jobs were, when the workers are the most active, the locations and home countries of workers and requesters on the Microworkers platform – since it is a 'country no-bar' platform unlike AMT. Peer's et al. (2015) studied platforms that have gained notoriety as tools for online behavioural research such as CrowdFlower, Prolific Academic and AMT, and compared workers on these platforms in terms of demographics, honesty and naivety for research work; these factors are important for employers or researchers who conduct research studies online. The findings of this thesis shed some light on how crowdworkers view and participate in such research studies and what researchers could learn from the workers' perspectives when planning to conduct studies online.

Researchers have also looked at various aspects of working with the crowd such as what motivates the crowd – is it money, altruism, contribution, fun and so on (Ipeirotis, 2010, Ross et al., 2010, Shaw et al., 2010, 2011, Rogstadius et al., 2011, Kaufmann et al., 2011, Brabham, 2013, Chandler et al., 2013). Why does the crowd do crowdwork? – a question that has been studied across multiple platforms, over time (Teodoro et al., 2014, Jiang et al., 2015, Brewer et al., 2016) – these studies have been carried out both qualitatively and quantitatively. Attempts to develop typologies of the different crowdsourcing platforms, their applications, features and functions have been carried out in the industry and academia (Frei, 2009, Doan et al., 2011, Brabham, 2013, Vakharia and Lease, 2015). Researchers have also been interested in devising and ways of judging honest responses from the crowd or improving the quality of data coming from the crowd by way of tests, incentives or feedback (Ipeirotis et al., 2010, Wais et al., 2010, Dow et al., 2012, Mason et al., 2010, Kittur et al., 2013, Scekic et al., 201, Hamm, 2014), which unfortunately meant sometimes that workers were labelled or fell under categories that did not take into consideration their circumstances of work and life (Kazai et al., 2011, Gadiraju et al., 2015). For instance, Kazai et al. (2012) showed that workers' performance and data quality can have some bearing by factors such as gender and location. Such studies brought to surface the need to study the workers, to know who they were so that tasks and platforms can be designed to support their requirements of complexity, language and so on.

A few researchers studied the characteristics of the AMT platform from a design and usability perspective to see how it could be made more accessible to workers. Khanna et al. (2010) studied the design of platform by observing low-income workers in India interact with AMT. Their study explored the barriers preventing such workers from working on crowdsourcing platforms; such as understanding the intent of the tasks, complex instructions and user interface, issues with navigation and sequencing of tasks, and the difference in cultures. As a plausible solution to overcome these issues, Khanna et al., designed and tested an interface with improved instructions, video tutorials and language localization; which produced a significant increase in the quality of work of the workers.

Of further interest is the technology and infrastructure in countries like India, which follows different standards than experienced and expected in the Western world. Crowdsourcing requires a computer and internet, and crowdsourcers and platforms take it for granted that these resources would be available to all its workers, and be of adequate quality to carry out crowdwork. The Population Reference Bureau (PRB)[13]'s analysis of Indian census data of 2001 states that out of the 138 million rural households and nearly 54 million urban households, 1.5 percent of urban households had a personal computer with Internet and 1.9 percent had a computer with no Internet. Computer ownership was virtually nil in rural areas. Ownership of a telephone in urban nonslum areas was 26.4 percent for fixed phones and 3.9 percent for cell phones, and 5.3 percent for fixed phones and 0.9 percent for cell phones in rural areas. By 2001-2002, 56 percent of the rural households were run by electricity and 93 percent of those in the urban areas, but there is no clear data on the amount of power cuts experienced by the population.

These figures have changed over the decade. PRB reports from the 2011[14] census that while homes are being connected with electricity for purposes of running television, computer or air conditioning, 1/3rd of the entire population still lacks electricity. Computers with internet account to 3.1 percent or 37.2 million and computers without internet account to 6.3 percent or 75.6 million of the overall population, and 63.2 percent or 758.4 million of those own a telephone (any phone) and 53.2 percent or 638 million people own only a mobile phone. Out of these there are only 220 million smartphone users[15]. Technology and infrastructure is a key aspect of crowdsourcing, and these numbers gives us a peek at what the current situation looks like in India.

[13] Sharma, O.P and Haub, C (2008). How People in India 'Really' Live http://www.prb.org/Publications/Articles/2008/howindianslive.aspx
[14] Haub, C (2012) 2011 Census Shows How 1.3 Billion People in India Live http://www.prb.org/Publications/Articles/2012/india-2011-census.aspx
[15] 28m urban homes in India have a computer: Intel-IMRB study http://www.imrbint.com/downloads/media-room/2010/28m%20urban%20homes%20in%20India%20have%20a%20computer_%20Intel-IMRB%20study,India%20news,Online.pdf
http://www.thehindu.com/news/cities/mumbai/business/with-220mn-users-india-is-now-worlds-secondbiggest-smartphone-market/article8186543.ece
http://www.forbes.com/sites/saritharai/2016/01/06/india-just-crossed-1-billion-mobile-subscribers-milestone-and-the-excitements-just-beginning/#786ee6915ac2

The role of infrastructure in crowdwork is also an issue that has been rarely been studied excepting a handful of papers. For instance, Gawade et al. (2012) explored whether microtasks could provide employment to people in developing nations such as India and Kenya by way of cybercafés that could serve as informal centres of work. They recruited owners of cyber cafés in these countries and deployed a crowdwork application, where workers had to see and type a set of falling words on the screen, and money was paid for every correctly typed word. Words were in English, and were available until they reached the bottom of the screen, after which they disappeared. The application was deployed in Adobe Flash 10, with XML used for saving user logs. The workers had to work unsupervised. While the speed of the workers in performing the task given was relatively slow during the experiment, they were skilled enough to earn acceptable wages in the range of $0.50-$1.75 per hour. The researchers also surveyed the workers and the café owners and found that 99% of the participants wanted to continue doing microwork in the cybercafé, and 8 of the 9 participant café owners reported willingness to continue hosting such a setup. This study showed that online microwork using cybercafés as informal work centers of work is a promising income source for those of low income backgrounds, and also explored several factors such as: worker interest, owner interest, skill levels, and platform alternatives – for microwork. Vasantha et al. (2014) report an initial study of rural homeworkers in Scotland, providing demographics on computer skills, views on rural infrastructure and their skills in solving spatial visualization tests. The authors suggest that the homeworkers can solve knowledge-intensive industrial spatial reasoning problems with minimum training. Participants reported on their computer and internet skills as mostly ‘good’, while some reported ‘fair’. Authors also call for more research on rural infrastructure that support crowdsourcing work to evaluate their adequacy for doing crowdwork. Narula et al. (2011) found that microtask marketplaces were often inaccessible to workers in developing countries, and introduced a mobile-based crowdsourcing platform called Mobileworks for simple OCR tasks, thereby lowering a barrier for participation.

The 18-month long Kelsa+ project experimented with digital habituation (continuous and voluntary interaction with PC) amongst 35 support staff members of a corporate IT facility in Bangalore, India; who had very limited or no knowledge of operating computers or working in English (Ratan et al., 2009). The staff members only ever interacted with their niche machines on a repetitive basis – such as fax or photocopying machine or the security camera tracking application. The experiment set up involved an internet-connected PC set up in the office's basement for the exclusive and free use of the 35 support staff to be used during workers' off-duty hours. The project was called Kelsa+ as 'kelsa' meant 'work' in the local language Kannada, and the '+' meant 'after-, beyond- or improving' work. The project showed that low-income workers had the potential to develop their skills when provided access to resources, peer support and the freedom to learn at their own pace. It also improved English proficiency and digital literacy and provided workers hope, self-esteem and confidence boost for upward mobility and growth.

On a similar note, Kittur et al. (2013) 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". Quinn and Bederson (2011) further document the fact that the platform itself does not adequately support the workers, driving them to create their own tools and forums in order to create the shared information resources necessary to make work on mTurk lucrative. AMT being a "market for lemons", where the requester cannot judge the quality of the product they will receive before pricing their HITs, leads to lower pay upfront and lower quality results in return, which they say not only drives away "good" workers, but decreases the quality of the market itself.

On the other hand, AMT has become a popular tool with academicians to recruit participants for their studies typically in the areas of behavioural studies, economics, psychology-based experiments, information visualization, machine learning, natural language processing, computer vision and so on, which makes AMT an 'online laboratory' and its workers 'guinea pigs' for science (Buhrmester et al., 2012, Rand, 2012, Marder & Fritz, 2015, Windsor,

2015). But managing these studies in an online, uncontrolled environment without knowledge of the study's subjects called for a rigorous discussion, and so, quite a few articles have been written on this subject (Kittur et al., 2008, Paolacci et al., 2010, 2014, Horton et al., 2011, Berinsky et al., 2012, Mason et al., 2012, Goodman et al., 2013, Chandler et al., 2014). Fort et al. (2011, 2014) points out towards the seriousness of using AMT by taking the case of researchers in the Natural language processing (NLP) domain, using AMT to support their work, as can be understood by their statement "MTurk is not a game or a social network, it is an unregulated labor marketplace: a system which deliberately does not pay fair wages, does not pay due taxes, and provides no protections for workers" (Fort et al., 2011). They make calculations to show that only an estimated 20% of the most active turkers work on 80% of the tasks available on AMT, creating a bias and risk for the purposes of sampling for research studies. They urge researchers, funding agencies, and the academic community as a whole to think of "ways by which users of AMT can learn to value ethics of crowdwork over cost saving.. hold itself to the highest ethical standards of employer/employee relationships.. and insist on adherence to fair labor practices in such work" (Fort et al., 2011).

The legal perspective on crowdwork is very distinctive, and very revealing. Felsteiner's (2011) article especially, provides a comprehensive review of the existing legislature on crowds and labour. He describes the work of crowdwork on AMT as cognitive piecework, and points out that there are legal ambiguities surrounding this type of work due to its 'virtual', non-physical nature. He takes AMT as a case study and discusses the drawbacks of crowd labour as low pay, no security, no job benefits, information asymmetry, deception, privacy, while working in unregulated marketplace with no legal protection. He hypothesises how these drawbacks might only worsen in the future – leading to violation of privacy and limited information to make judgements about the work. Furthermore, Felsteiner's (2011) article offers a legal perspective on crowdwork by making two inquiries "1) whether crowd workers meet the definition of statutory employees under the Fair Labor Standards Act (FLSA) and the National Labor Relations Act (NLRA), and 2) what complications arise in applying those Acts to the crowdsourcing industry." He cites multiple

case studies related to contract work, piece-rate work, virtual work etc to elaborate on the legal status of the crowds, liability held by contractors and why crowd labour is considered a grey area.

Felsteiner, in his paper says, legal protections for crowdworkers in the U.S are negligible, which leads to situations of workers' facing issues with fairness in pay and poor treatment by their employers. With international workers matters are further complicated due to issues over jurisdiction, and hence workers in countries outside the U.S are even more at the mercy of the employers and the platform. Felsteiner suggests labour law reforms to be extended to include crowdworkers. He also points out that at present workers act as individuals and deal with such issues in an isolated, non-networked way, and so, he suggests that turkers have to perform their own policing and work together as a community to fight for their rights. Similar to Felstiner, Finkin (2016) examines crowdwork from a legal perspective and posits to why US labour laws don't offer legal cover for minimum wage, overtime, family and medical leave, unemployment, protection for unionisation and so on: as contracting work was probably aimed at 'highly qualified and paid professionals' doing well compensated consultancy work, and not highly contingent micro- and macrowork such as that experienced during crowdwork. Harris and Krueger (2015) argue for the creation of an intermediate category for such workers, since it is digital work and doesn't fall under traditional labour.

Smith in an interview with Salon (2006) said "The creativity of business in avoiding its responsibility to workers never ceases to astound, it's day labor in the virtual world." Smith feels crowdsourcing companies such as Mechanical Turk classify workers as independent contractors to avoid paying them minimum wage and overtime, and to avoid complying with non-discrimination laws, unemployment insurance and compensation for workers. In an article published by the National Employment Law Project, Smith (2015) approaches crowdwork from a labour rights and social policy perspective. Smith (2015) points out that many crowdworkers, or on-demand workers, meet the status of 'employee' under the FLSA. Both Felsteiner and Smith suggest that core labour and employment protections should be applied to all workers, including crowdworkers, who are at the moment legally disenfranchised. Both also

suggest, that workers should come together and bargain collectively for better wages and working conditions. In addition, Smith (2015) suggests that crowdworkers should be entitled to social and income securities, measures such as, unemployment insurance and paid leave. She also points out that technological infrastructure is not uniform throughout the country (U.S), which needs to be tackled by ensuring broadband access to all.

Another category of research looks into the ethics of crowdwork and addresses the marginalization of workers by requesters and the platform. The key research in the area of ethics of crowdwork has been conducted by Irani and Silberman (Irani 2013, Irani and Silberman 2013), who question the use of metaphors such as 'human-as-a-service' and 'human API', and their potential meanings when used by companies and computer scientists. They use Star and Ruhleder's analyses to point out that "working technological infrastructures are used with such fluency that they become taken-for-granted, humming quietly and usefully in the background". In AMT this infrastructure is "the system of workers interacting with employers through APIs, spreadsheets, and minimal web-based task forms." They show how design in AMT prioritizes employers, helps them see themselves as innovators, while making the turkers invisible.

The researchers were decidedly biased towards the turkers, as they found that the turkers needed support to fight the unfairness and opacity built into the system. They use various methods such as, participant-observations (as designers), holding discussions on turk-related forums, asking turkers to write haikus, compiling a 'Turker's Bill of Rights' and holding skype interviews to provoke the turkers and bring out the issues faced by Turkers (Irani, 2013, Silberman, 2010). They found that turkers had to primarily deal with, unfair rejection of work, uncertain or slow payment, low wages, and lack of proper communication with requesters and AMT. The researchers' believed activism through design could help support the workers form associations, and in turn, help each other. Hence, they designed a system called 'Turkopticon', which is a browser extension which helps turkers build reputation and records of requesters and their work, through an online rating and reviewing system, also allowing for a dialogue between workers and requesters.

AMT is designed as a black box (Felsteiner, 2011, Martin et al., 2014), which means turkers have had to work around AMT's designed infrastructure to gather information and talk with each other through forums (Irani et al., 2013, Martin et al. 2014, 2016). In this regard, Salehi et al. (Salehi et al. 2015) takes the work of Irani and her colleagues further in advocating for worker rights and to humanize turkers in the public eye through the Dynamo project. They set up a campaign website called 'we are dynamo'[16] and played a participatory role throughout the research and design process akin to what "moderators play in conversational online forums". Through their research, Salehi et al., focussed on understanding the "1) complexity of workers' existing social organizations, 2) the challenges of acting and 3) an understanding of workers' social categories". The researchers decided to engage with crowdworkers individually, discuss 'collective action', and speculate on how collective actions could work for them. The Dynamo project acted as an online workers union for Turkers to organise campaigns by voting for ideas, to bring about changes in the practices and policies of Amazon Mechanical Turk and its requesters.

The researchers were deeply involved in the study and design of the Dynamo platform and give detailed accounts of the issues of stalling and friction they witnessed between the workers; and how this was overcome with interventions from the researchers. They also give an account of "the extent of collective action that already existing among Turkers" for personal and professional purposes, which they underestimated prior to design work; as well as, point out that the expectation that 'all labour is scalable' in the field of human computation, may not necessarily be right. They also point out that studying 'Dynamo, turkopticon, and worker forums' offer alternative views of crowdwork to what exists in the mainstream media, as seen through the lens of AMT, requesters and HCI. Yet it is unclear how they arrived at the conclusion that unionization was "the" solution to solve the troubles of crowdwork, when they state that, "Designing for collectives to act requires deep theoretical understanding of the social dynamics of these groups.. The stakes are

[16] http://www.wearedynamo.org/

precipitously high for workers on Mechanical Turk, who fear the prospect of losing access to work. Actions taken by some could affect all members of the workforce."

Recently, Difallah et al. (2015) provided an analysis of the evolution of the platform AMT from data collected over 5 years as on their tracker platform mturk-tracker[17]. They also propose a prediction model to predict a HIT batch's throughput, which is "the number of HITs that will be completed for a given batch within the next time frame of 1 hour". Their paper provides the most current analysis of demographics and composition of its workers, requesters and tasks, the cycle of demand and supply of work and the pricing of the tasks; and this tool is available publicly. Their analysis shows interesting results in all aspects of crowdwork on AMT such as increase in audio transcription tasks, decrease in HITs asking for workers based in India, constant addition of new requesters to the platform and so on.

Martin et al.'s (2016) paper examines the positioning of AMT as a global labour market, and its understanding and impacts on two distinct and large groups of workers based in India and the US. They touch upon key areas of differences between the two populations such as in pay rates, living costs, language, time zones and infrastructure and technology, as well as the inequalities such factors create in the availability of work on the platform. They also discuss some of the ways in which turkers made sense of the market, how the workers viewed their situations, and reflected on the marketplace and of one another. The authors discuss what this meant for CSCW, for the purposes of 'activism and design' and prescribed some implications for design as a consequence. Martin et al.'s (2013) work comes closest to studying the work that turkers do. They study the workers' reasoning about their work choices, community relationships, and Turker-requester relationships by analysing publicly displayed posts on the online forum 'Turker Nation'; and this consisted of primarily American turkers. The study was carried out over a period of 7 months through observation of the online communities, by reading public threads and collecting materials such as screenshots and excerpts. They

[17] http://mturk-tracker.com/

use an ethnomethodological approach to analyse this material "to explicate how people organise their activities as a recognisable social accomplishment".

The gap in the literature

These studies make it clear that the 'view of work' and how it is organized from the perspective of the 'worker' is missing from the literature. Some of the keys aspects about the organization of 'work' include the spatial and physical layout of the work and the workspace, activities and processes that fill a workday, the sequential order and relationships between the activities including assembly, distribution and coordination of work. The existing literature doesn't cover these matters. The 'view of work' also includes awareness of work – in this case, how workers and requesters make themselves and each other aware of the current status of the work and its status, how they know what their current state of work is, and what they have to do next – some of which has been touched upon by Martin et al. and the works of Irani and Silberman, but the details of how this awareness is generated on the ground, in-real time is unavailable. Descriptions of how the work is accessed, coordinated and planned, and how that fits in with the plans and procedures of the crowdsourcing platform and its bureaucratic processes is also missing from the literature. This thesis aims to fill in the gap of addressing the work of crowdwork and shed light on the organization of crowdwork as carried out by the Indian workers, with all its subtleties and nuances. The subsequent chapters discuss the motives as to why workers decide to work on a crowd platform, the technology and infrastructural resources used, the value of the money they made, how they related to requesters, the social networks and relationships between them, how work was found, organized and carried out, as well as their standards and ethics in the workplace.

2.4. Addressing the gap: studying the 'work' of crowdwork

So why does studying 'work' matter? According to the pioneer of sociology of work and occupations, Everett C. Hughes (1971), study of work was necessary to understand the personal and social arrangements of work that made work

tolerable to those doing it. In his course, Sociology of Work and Occupations, at the University of Chicago students had begun to conduct empirical studies of work and occupations in a number of professions, which then led to Hughes developing frameworks for them through fieldwork.

> "to discover patterns of interaction and mechanisms of control, the things over which people in a line of work seek to gain control, the sanctions which they have or would like to have at their disposal, and the bargains which were made — consciously or less consciously — among a group of workers and between them and the other kinds of people in the drama of their work" (Hughes 1971, p. 420)

Hughes' (1971) in his framework developed the "concept of career", which amongst other things comprised of a set of routines for the practice and performance of work, its relationship with contingencies, as well as, the conception of work, duties and privileges as perceived by the members of the occupation. The findings chapters of this thesis explore what the 'career' The traditional workplace studies of different types of work such as the ATC, print industry shopfloor and so on (Hughes et al. 1992, 1994, Sommerville et al. 1992, Bowers et al. 1995, Button and Sharrock, 1997) used different configurations of ethnography with different approaches to fieldwork; they were evaluative, descriptive and even concurrent. Following this tradition, the thesis focusses on the study of work practices, contingencies managed during the process and the perception of work as perceived by those who perform it. The study of crowdwork has been rather exploratory, since there hasn't been a programme of study or investigation in place to study the crowdsourcing platforms or the phenomenon of crowdsourcing; the aim then of this research is to sensitize designers, academic researchers, crowd platforms, business users and policy makers towards the situation of crowdwork, and how the crowdworkers orient to it.

In studying crowdsourcing, lies an 'interesting' phenomenon that has been intriguing the business and academic world which is the view of the 'work' from the viewpoint the workers. As will be explained in the findings chapters 4 and 5, the crowdworkers have to constantly juggle between 'decisions-that-I-can-make', 'doing-what-I-can-do' vs 'actions-that-I-can-take' (phrases

borrowed from the paper of Hughes et al., 1992), as has been found time and again, in the work employing computer-based technological systems, that:

> A computer-based system or any other tool can, on the basis of its material properties, be known about, geared into, made to work, tinkered with, taken advantage of, used in unanticipated ways, modified, circumvented, or plain rejected by those who work with it, implement it, invest in it, or manage it. That is, it is densely woven into the activities of doing the job, and in highly particular ways (Hughes et al, 1992).

The research explores such 'decisions-that-I-can-make' and 'actions-that-I-can-take' from the study of a community of workers who use crowdsourcing to as a means of employment and to generate an income; where the work and platform are constantly evolving, the work deals with a high number of contingencies, and the workers are supposed to carry out the work in isolation, but are found to be a self-organising, social group.

It is necessary to understand 'work' in its everyday, organisational context to be able to design or develop optimal solutions to support the work. The positive impact of studying work might lead to conceptualization or design of socio-technical systems that work, both theoretically and in real-time. The impact of 'not' studying work might lead to 'idealization' or 'exotizing' of work processes that may be catastrophic in real time, for the workers and the organization due to conflicts between design and the actual practices of work, as organised in real-time. The Methodology chapter presents examples of such systems through the study of work in groupware systems and in settings like receptions of public offices, which might help elaborate on why understandings of the work, its organisation and practices as followed by workers is important to study. Briefly stating one example, Button and Sharrock's (1997) study of a printer company gives an insight into the relationship between the design of the system in an organisation to the way work is actually coordinated and carried out on the floor. To maintain a smooth flow of work, create, and maintain 'order' between the machines within a print centre, the managers had to produce a schedule for the jobs using a forward-loading-board, track and monitor them through the various stages of production while allowing for jobs to follow a 'first-things-first' rule. The managers also had to physically monitor the demand on the machines and the

people working on the shopfloor such as by the use of the strips inserted into a board on the machines that contained the details of a print job, thus creating a sequential order of jobs to be done. The running of this production service required extensive communication and coordination between the administration and print managers, and operators working on the shopfloor, with a need to keep operations 'visible' at a granular level, manage contingencies and taking remedial actions on the spot. The print production worked on the basis of making the order visible to the local personnel; with the deployment of a centralised system, this creation, running and management of order, would have to be available for viewing, centrally. The available information and communication systems at the time did not address the need for such an intensive co-ordination of work or offer flexibility and revisability that was seen on the floor; and without these key aspects in place, the printer company would have a system that actually broke their flow of work, and created additional work for the personnel, than support their work or make it more accessible.

This thesis follows such a tradition of work-practice studies and explores what production of order means for workers in the crowd. It describes the calculations necessary for the workers to decide on what job is worth doing, and the tools and artefacts used to accomplish said work. The thesis also explores the current state of the platform, and the resources available to the workers to carry out their work, and conflicts, if any, experienced during the production of crowdwork.

2.5. Summary

This chapter provided insights into how crowdsourcing is viewed in the world currently – with its promises, hypes and flaws. It provides a brief view of the different types of platforms that exist in the realm of crowdsourcing that serve various purposes and follow different models. It then narrows the focus down to the paid crowdsourcing market and focusses on platforms that use a microtask-based business model. The chapter then focusses on AMT and gives

a brief overview of the 'terminology' applied by those who use AMT, and a surface view of how the platform works. The chapter then explains the concepts of social computing, social machines and artificial artificial intelligence and describes the scope of this research by way of Amazon Mechanical Turk. It also gives various perspectives regarding the view of the 'work' of crowdwork or of the 'crowdworkers' – from the research, legal, experimental, ethical, and work perspectives. The chapter then points out that the study of 'work' from the perspective of the 'workers' is missing from the literature. It goes on to explain why this perspective is important and how it could help with the design of socio-technical systems and gives an exemplar case study from the Systems Design and CSCW tradition of studies of systems in the print industry to support this.

Next step

The thesis describes the work practices as observed by the researcher and explained by the workers during the ethnographic study of the workers based in India, which began in the summer of 2012 and took place for 6 months. It brings out the hidden, invisible work of organization turkers had to engage in, to find and manage their work. It also describes the organizational features of this new kind of labour such as autonomy in work, accessibility and flexibility afforded by the platform as well as rhythms and management of crowdwork. To commence with this description, the next chapter illustrates the methodology and practicalities followed during the study, as well as the way the data was analysed using an ethnomethodological approach. The thesis then goes on to explain the key analytic messages from this research and the implications for design for the members of the communities of HCI, CSCW and crowdsourcing.

3. Methodology

3.1. Chapter Overview

This chapter is broadly split in two parts. The first describes the practical elements of an ethnographic field study and subsequent written reports that resulted from it. The subjects of this study were Indian crowdworkers, living and working in India. The second part of the chapter provides background to this thesis, describes the methodology and analytic approach employed in conducting this study, namely, ethnomethologically informed ethnography, provides exemplar case studies to describe key concepts from ethnomethodology relevant for this research, as well as elaborates on its relationship to systems design. It explains why ethnomethodological ethnography is the appropriate research orientation to bring to surface the research questions discussed in this thesis. As pointed out in the Introduction chapter, the research problem aims to understand the lived work of crowdwork, as made visible by the practices followed by the Indian turkers, as well as to inform design to support the end-users – the turkers.

How better to achieve this than to get a 'first-hand experience' of the social lives of the crowdworkers by visiting and speaking to them about their local, social settings and looking at what they do. This section describes the practicalities of the study beginning with the design of the study, providing a description of the various methods that were used to collect data. Interviews conducted virtually and in-person to gather in-depth details about turkers' work, observations that took place in their respective workplaces to observe their work. This data was then analysed from an ethnomethodological perspective and written up as thematic reports to be analysed further.

Fig. 4 provides a timeline for the activities undertaken during the entire process of this research, including the background research, fieldwork, ethnographic data collection and analysis.

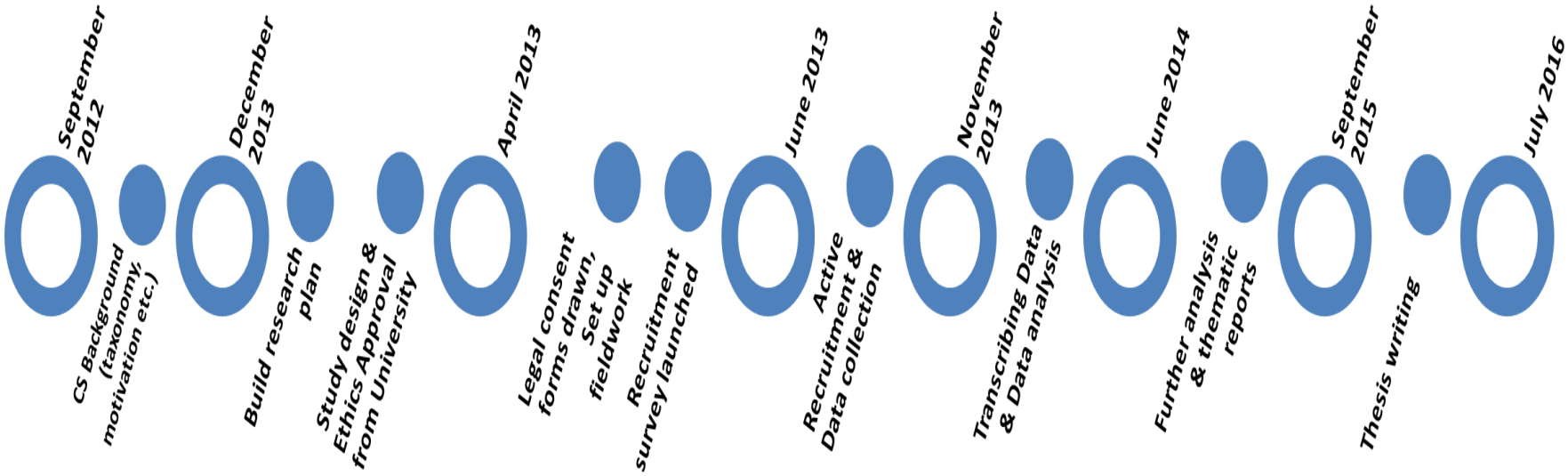


Figure 4: Timeline for the PhD research and thesis

3.2. Practicalities of the study

Surveys were set up on AMT as a paid job to recruit workers and pave way for further ethnographic research. Virtual interviews with subjects were conducted through Skype, phone and conferencing facilities, as well as face-to-face interviews, coupled with walkthroughs and think aloud of all activities they undertook as work. Observations with participants were conducted in their respective workplaces to observe how they looked for and organised their work.

The total count of data collected through different methods was:

- 78 survey responses,
- 32 virtual interviews,
- 3 in-person interviews,
- and 12 observations at 5 different locations.

The data from the interviews and observations was then analysed from an ethnomethodological perspective. The fieldwork and data collection took place in India from June to November 2013. Participant recruitment started in May 2013, with recruitment running parallel to data collection. The study took place out of Xerox Research Centre India's (XRCI) offices in Bengaluru, India, between May to October, and was continued from Xerox Research Centre Europe (XRCE) offices in Grenoble, France in November. At the end of the study the data collection culminated in **34 hours of usable audio-video data.**

3.2.1. Research ethics and design of the study

The scope of the study was decided as the study of Indian workers on AMT, as the PhD's industrial partner XRCE, were able to set up an initial contact with workers. To this end, a research ethics requirement was cleared with the University of Nottingham ethics committee. A comprehensive informed

consent form with materials release was created for potential participants, accessible as a digital form as well as offline via print. A comprehensive questionnaire in simple English was created after discussions between XRCE and Nottingham. The questionnaire was then built into the university survey tool – Bristol Online surveys – as it had a simple design and free access to students. The survey was tested for usability, readability and understandability by friends in India. The topics for interviews and observations were decided to be broadly based on workspace and infrastructure, setting up of accounts, and a deeper enquiry into the process and organisation of turking.

3.2.2. Recruitment Surveys

First access to participants was provided by the XRCI lab in Bangalore, India. They compiled a list of 100 AMT WorkerIDs and email addresses who had previously worked for them on AMT. These workers had contacted the company personally, thus waiving their anonymity and providing the requester, the lab, with their contact email address. Out of the 100, 31 contacts were discarded as they were not based in India and thus outside the scope of the study. The remaining 69 workers were contacted via their only contact available to us – their email. The response rate was of 11.6%.

The surveys were timed to take 15 mins to complete on average based on the internet speed. The link to the survey was delivered by email but the survey was posted as an AMT HIT, and the responses were recorded anonymously. 78 people responded to the survey. Participants were compensated with $2.50 for their time. Once the HIT was live, other turkers who saw the HIT wanted to participate in the study and contacted the researcher via AMT. The surveys were used as a recruitment tool, and to collect some basic demographic information and details of crowdwork, like, where turkers worked from, computing devices used for turking, platforms other than AMT used to do crowdwork, kinds of tasks etc. At the end of the survey, they were asked if they were interested in participating in interviews and observations.

3.2.3. Interviews

Upon completion of surveys, participants were invited to take part in an interview or observation. Payments were made via a HIT on AMT. These participants were a subset of those who participated in the surveys. The interviews were open-ended semi-structured interviews conducted through skype, telephone, face-to-face interviews, and observations. The interviews typically lasted between 45 – 90 minutes – some of these were recorded. The participants were came from different backgrounds and demographics: 21 participants in the age group of 20 – 29 years old, 10 participants in the age group of 30 – 40 years old, 3 participants were under 20 years old and 1 participant was a pensioner (60+ years).

The participants were a mixture of full-time and part-time turkers and even those who turked rarely (once a month or once in 2 months). Participants covered a vast geographic area as expected; they came from South Indian cities and suburbs, Mumbai, from the cities from the states of Punjab, West Bengal, Orissa, Rajasthan, Jharkhand and so on. The interviews were conducted on a first come first serve basis, with an open invitation to participants to take part in the observation studies.

Participants discussed turking schedules, daily schedules of work and personal life, tasks they liked to do, their support network of friends and family, incomes earned from turking, infrastructure in place to support turking and so on. Participants were compensated with $7 for their time and with bonuses for any extra time or contributions like emailing screenshots or pictures of work environment. These interviews were transcribed in the summer of 2014.

Why use interviews to gather data it might be asked? Why gather talk and reflections about a subject when there is a possibility to immerse oneself into the setting of work and see instances ‘temporally unfold’? In this regard, we discuss practical matters first of all. The chapter consists of instances that occurred in the past, such as, how did one create an account on a microtask platform, how did one come to hear about it. There was no other plausible way of gathering that data first-hand except for hearing it from the members who

actually accomplished those tasks in the past, with the help of some artefacts to substantiate their accounts. Secondly, gathering data by means of informal, unstructured dialogues and recollections of members' accounts doesn't diminish the rigor of the approach or the credibility of the analytic results. Rather, the act of describing and demonstrating their actions in crowdworking constitutes as a part of the members' methods as well.

3.2.4. Observations and walk-throughs

12 participants were studied in five different locations across India. For observations, the participants were a subset of those interviewed earlier, along with uncontacted turkers friends from their local community. Participants were studied in their place of work – homes, hostels and offices, internet café and other workspaces. Participants were observed 'doing turking' in cases where it was possible for the researchers to arrive at turkers' usual 'turking hours', which was typically in the evening after 7.30pm till midnight or later. In cases where this was not possible, turkers provided a walkthrough of the activities they undertook during their regular hours, and provided demonstrations of what they might do if a particular task or issue came up.

The observations ranged from between 1.5 – 3 hours on average where data was collected with the consent of the turkers through extensive notes, screen recordings, screenshots, pictures, as well as, audio and video of participants, their AMT accounts, emails, tools and artefacts they used during work etc.

Is there a significance in the number of participants? Does it affect the generalisability of analytic results? Crabtree et al. (2013) rightly say 'scale should not be confused with generalisation', ethnography's role is to bring out the machinery of interaction (also known as the member's methods, procedures or work practices (ibid.)) in a setting. It shows how members use this machinery to 'arrange' or bring order in their everyday life activities, which make the interaction possible but go unnoticed. The number of occurrences of an interaction does not matter, what matters is that it is described such that the

social ordering or collaborative organisation of that interaction is made visible. As Sacks (1984) put it

> "Our aim is to get into a position to transform … our view of 'what happened', from a matter of particular interaction done by particular people, to a matter of interactions as products of a machinery. We are trying to find the machinery." (Sacks 1984, p. 26-27)

A member of that setting (in this case, a crowdworker working on any microtasking platform) can reflexively give an account of and verify how the work in that setting takes place. Generalisation does need to be based on mathematical, quantifiable data, generalisability can be achieved with ethnography and its rich description of the member's methods (Crabtree et al., 2013). The findings chapters in this thesis provide details to uncover the social ordering of the 'doing of crowdwork'.

3.2.5. Thematic reports

The data collected through interviews and observations was transcribed and analysed into several key themes. The data captured turking-in-action, demonstrations of turking and the local circumstances in which people lived and worked. It also contained a significant amount of reflections, and the sharing of experiences and opinions about what turkers understood about AMT and how they operated within it.

One thing ethnomethodology tell us is that the local production of order is inter-subjective, 'known, used in common, and taken for granted by any and every competent member of a setting' (Crabtree et al., 2012), and as such, this research focusses on reflexivity of 'accounts' of those machineries of interaction rather than that of the self (researcher). This thesis explores topics within the data, hence the themes and topics such as of 'calculation, planning, occasioning of work' and so on, described in this thesis are endogenous to the data obtained from iterative analysis and working through the data.

The researcher went through the transcripts of the interviews and observations systematically and highlighted the emergent topics that came out of the data by

asking questions of the data ‘What is this saying about crowdwork? What does it implicate in crowdsourcing? What does it mean for the crowdworker or requester? This led to the development of numerous organizational topics such as worker skills, work practices, suitability of work, calculation of suitability, system design issues, infrastructural concerns and so on. A document was created, populated with these topics and themes supported by anecdotes, quotes and vignettes, which was then re-analysed together with the PhD’s industry and academic supervisors, with the help of powerpoint, whiteboards and markers, and digital post-its, which led to emergence of five large themes and sub-themes nestled under them. These were then written into the following thematic reports:

- Motives and Pathways
- Finding work
- Workflow and flow of work
- Payment management
- Ordinary troubles (which was later split and merged with the other 4 reports)

These reports provided a rich and nuanced description of the work of crowdwork and how it was organised in-situ. They explained ‘what was done in the doing’ of crowdwork and the actions and interactions that made up turking on AMT. These revealed how workers viewed their work and actions surrounding this work, and how they organised work as a social enterprise. These reports provided material for further analysis and form the core of the findings chapter of this thesis.

3.3. Ethnography (abroad and at home)

This section positions the methodology applied in this thesis within the tradition of systems design and development, championed by Xerox PARC some 40 years ago, increasingly used in studying computing systems. The main contribution of this thesis is in creating naturally accountable, rich

descriptions of situated action of crowdworkers by employing ethnomethodologically informed ethnography, to inform design. Such ethnography has been adopted widely across the fields of Human Computer Interaction (HCI) and Computer Supported Cooperative work (CSCW), in studying and developments of computing systems in and out of workplaces and various other settings.

This section begins by stating exactly what is meant by 'ethnography' here[18], and what could be achieved by employing its use for this research. In the 19th and early 20th century, ethnographers and anthropologists studied distant tribes and communities that were foreign to them. The research took place in exotic, unusual locations away from home, through long field trips, and creation of accounts using the help of the ethnographers' fellow countrymen, employees and missionaries working in such places, as explained by Malinowski (1922) about his 'initiation into fieldwork':

> It would be easy to quote works of high repute, and with a scientific hall-mark on them, in which wholesale generalisations are laid down before us, and we are not informed at all by what actual experiences the writers have reached their conclusion. No special chapter or paragraph is devoted to describing to us the conditions under which observations were made and information collected. I consider that only such ethnographic sources are of unquestionable scientific value, in which we can clearly draw the line between, on the one hand, the results of direct observation and of native statements and interpretations, and on the other, the inferences of the author, based on his common sense and psychological insight. (Malinowski 1922, p.3)

During his time in the islands of New Guinea, Malinowski found his style of fieldwork, as he abandoned the 'verandah', abandoned the comforts of the homes of his white companions, making occasional trips to the field, collecting a 'corpus of exhibits' - e.g. the Kula ring and the folklores surrounding it - other local artefacts, pictures and measurements of the natives and so on. These 'travellers tales' ran the danger of not documenting the actual practices of the natives but studying 'preconceived ideas' about the subjects as being

[18] There are disputes regarding the 'kind of' ethnography that is being practiced today in the fields of HCI and CSCW and sociology. This chapter consciously refrains from indulging in this dialogue, as it is beyond the scope of this research. For this thesis, the research is inspired by Alex Taylor's paper where he warns researchers against 'exotic-izing' and 'making strange' cultures (Taylor, 2011). The fieldwork and data collection for this research has not been organised with respect to a social theory or culture, and has instead studied the actual practices and social actions as they occurred on the ground, to capture details of 'situated action'. For further reading into this matter see Button et al., 2016, Crabtree et al., 2009.

passed on by their white companion, who might have 'their own routine way' of treating the natives, and might not understand or care much about ethnographic inquiries. From his fruitful experience of camping in the native villages, Malinowski felt that he was in close contact with his subjects, able to be present, to really 'be there' when something sensational or commonplace happened to be able to ask questions as well as document the happenings. He asks his peers to do the same, that ethnographers go into the real world on their own, to understand the 'native's point of view' (Malinowski 1922). Such a technique would allow ethnographers to study to the fullest extent the phenomenon that is surrounding them in a scientific manner, which is 'pedantically systematic and methodical', capturing the everyday phenomenon, not differentiating between 'what is commonplace, or drab or ordinary, and what strikes as astonishing and out-of-the-way'.

Malinowski's work revolutionised fieldwork, even if quite by accident, into an immersive experience that was achieved by living with the natives in a faraway foreign land, witnessing their social lives, collecting 'first-hand' information about their methods, and analysing this information in a detached sense rather than using borrowed, second-hand accounts of their informants or 'cicerones'. This 'immersion' into the field influenced the emergence of ethnography as a broad approach to social inquiry. But ethnography is not just a method for data collection as Bittner (1973) points out. It involves being 'situated' in the field one intends to study, as well as, 'analysing' the data collected, to provide a meaningful and useful account, in this case – of providing a context for design - of the everyday activities of the people under study.

In the 1930s, sociologists at the Chicago School of Sociology decided to bring ethnography home; instead of studying far away exotic lands as traditional anthropology did, they decided to study their own rapidly transforming city Chicago. Sociologists such as Robert Ezra Park, Ernest Burgess and many of their colleagues practiced sociology in an 'interactionist' tradition studying many different *urban* aspects of a dynamic city, such as, the lower classes and the migrants who had come to the city in search of work and how they affected the social lives of the city dwellers (Park, Burgess, Mackenzie & Janowitz, 1984). The school was inspired by the investigative journalism techniques of

Robert E. Park, and along with Burgess, the Chicago school used fieldwork, and close contact with their subjects, as a way of familiarizing themselves with the details of the social organization in the society, and understanding the diversity of their social environments (Button & Sharrock, 2009).

The Chicago School founders – W.I. Thomas, Robert E. Park, Ernest W. Burgess, George Herbert Mead, and the second generation sociologists Everett C. Hughes and Herbert Blumer were collectively known as the symbolic interactionists (Chapoulie, 1996). Park, Burgess and Thomas (1966) used the phrase 'definition of the situation' at the Chicago School as a key idea in studying social settings, as placing the 'point of view of those who inhabit these social settings' at the centre of attention (Button and Sharrock, 2009). Blumer (1969) studied the everyday activities of work, emphasising upon the 'social organization' or 'collective behaviour' of work, which could be studied by ethnographers through "observation and description of interaction and collaboration within natural settings, in contrast to within laboratories" (Crabtree, 2003). Interactionism, a term coined by Blumer in 1937, pointed out that 'what people do is based on how they interpreted their situations and actions of others' (Blumer, 1969, Button & Sharrock, 2009). He brought forward the concept of gathering an understanding of collaborative definitions and actions and how the collaborative development of understanding applied within a community by those who were a part of it, leading to the understanding how that community functioned (Blumer, 1969).

In this tradition, Everret C. Hughes is the missing link between the first generation of the Chicago School of Park and Burgess, and the interactionism approach followed by Blumer. Hughes, belonging to the second generation of the Chicago tradition, furthered the use of direct in-depth fieldwork and ethnography in studying social phenomenon, encouraging the creation of an analytic framework as presented by the social phenomenon and its members, rather than fitting it within a social theory or framework. His focus on the study of 'professions' or 'occupations' and his essays on sociology of work, are of key relevance here. In the 1950s, amidst the disappearance of the first generation Chicago tradition and a severe mistrust of ethnographic approach of studies, Hughes focused on studying topics at the intersection of the

sociologies of work and education (Chapoulie, 1996), studying the nursing profession with Deustscher (Hughes et al., 1958), and the profession of medicine and medical education with Geer, Strauss and Becker[19]. , Button et al. (2015) cite the work of Shaffir and Pawluch (2003) describing Hughes' works, that generally took the form of essays that were based on studies conducted by him and his students:

> Hughes sent his students into the city to study the janitor, the cab driver, the doctor, the union official, the factory worker, the musician, and others. Such studies helped lay the groundwork for the qualitative tradition in sociology and furthered our understanding of how workers organised their work and saw themselves. (Button et al. 2015, p. 113)

These works contained research questions that were investigated, related concepts that were critically elaborated, sketched a program to study the phenomenon (of occupations), and contained 'propositions about the range of possible variation of some property characteristic of a kind of behaviour, institution or social relation', instead of well-defined theory (Chapoulie, 1996).

3.4. Ethnomethodologically-informed Ethnography

Everret Hughes's work greatly influenced Howard S. Becker, who contributed to the sociology of deviance and the sociology of art amongst his most noted works. Mentored by Hughes, Howard Becker studied jazz musicians and how they made music as a part of his dissertation, and therein approached art as an 'occupation'. Although he studied collective action and division of labour among jazz musicians, fellow-sociologists like David Sudnow found that his description of the work of the jazz musicians actually didn't provide much detail about the 'work' and the work practices, or the 'goings-on' in music-making, as done by those who engage in making this particular type of music (Sudnow, 1978). Sudnow calls this problem with interactionism - the 'Howard Becker phenomenon', and Garfinkel describes this succinctly (Garfinkel, unpublished, Tolmie & Rouncefield, 2013):

[19] Boys in white: Student Culture in Medical School ([1961])1995) and Making the Grade: The academic side of college life ([1968] 1995).

> His studies show "that there are jazz musicians, where they work, who they work with, what they learn, how they get their jobs, or what the audience will request of them. But nowhere in the articles can it be read, and no interrogation of the articles will supply that in just those places, just those persons, with just who is there, and at just that time, with the materials and under the circumstances at hand must in and as their work make music together". (Garfinkel unpublished, p. 10)

Sudnow points out that in Becker's accounts the practices of **what** the jazz musicians do is replaced by an appreciation of their work and descriptions of the 'recognizable just so, just what is going on: making music', which although important, **miss** the 'local, witnessed, practically objective and practically observed materially particular musicians' practices' (Grafinkel, unpublished). That brings us to Ethnomethodology. Ethnomethodology studies and provides descriptions of this 'missing what' that is interactional in nature (Garfinkel, 1967). Ethnomethodologists are of the view that understanding social action and organization requires an understanding of the construction and recognition of these social activities by the actor or the member, which are key for any form of sociological investigation (Heritage, 1984). Studying interactional work meant studying how members achieved the 'here and now' in a particular setting, by means of practical action and practical reasoning, that is, via the methods used by members for the local production and achievement of social order. Crabtree et al. (2012) succinctly describe it:

> Whether getting up and out the door in the morning, travelling to work, doing our jobs, or resting and relaxing afterwards, all of these things and more implicate others in their accomplishment even if we live and work alone. Ethnomethodology suggests that we know and recognise this as members of society, know that our ordinary activities involve others, and know that the ways in which we do our activities rely on our mastery of practical sociology: on our mastery of working with others and the things that others do to get the activities we find ourselves engaged in done. (Crabtree et al., 2012, p.1)

Ethnomethodologists believe that ordinary people are practical sociologists, who know how to perform and organise actions pertaining to everyday activities of life, without having to academically learn about it. The questions ethnomethodologists seek to answer involve unpacking 'how' people do these everyday activities; including looking into the practical matters, the skill, knowledge, effort and competence required to accomplish or 'do' an activity – in short the 'work' that people undertake or engage in to accomplish their

everyday activities. It is important that this 'work' is 'naturally accountable' or 'observable-and-reportable' (Garfinkel, 1967), which means that "action is done in such a way that members can recognise and describe it as the particular thing that it is" (Button et al., 2015). This naturally accountability is important because 'individual actions' of a member take place within the 'social structure' of the individual action, providing them with mutual visibility and intelligibility as 'pattern and particular'. Sharrock and Watson (1988) explain:

> The relationship between individual action and social structure is not be conceived at this level as one between cause and consequence. It is instead to be conceived as that of pattern and particular… particular is recognisable for what it is as part of the pattern but the pattern itself is made out of and manifested in the particulars… they are mutually constitutive (Sharrock and Watson, 1988, p.64)

Explaining further, the members of a setting can see what it is that's going on around them; they know what it is that they and their social counterparts are involved in doing; and they can provide an account of what they are seeing and doing that others will recognise too; thus making it an 'account-able' action (Crabtree et al., 2012). For instance, queuing to get a cup of coffee or waving to say hello to someone is a naturally occurring, naturally accountable phenomenon, that all parties involved can recognise, by seeing what is going on, and what is being done around them; the recognisability of work is an 'uninteresting local achievement of (ordinarily and professionally) accountable social order (and disorder)' (Lynch, 2000). And, unpacking such naturally accountable work in any setting, whether it is air traffic controllers, computer scientists, or contract workers in an online labour marketplace, is key to inform design that can support the everyday mundane activities they partake in. To do this, one must first of all learn 'what' it is that work in a setting consists of; secondly, explicate 'how' this work is made 'naturally accountable' by organising and assembling activities to accomplish it. As Button (2000) says:

> It is the explication of members' knowledge—what people have to know to do work, and how that knowledge is deployed in the ordering and organisation of work— that provides the key to understanding the contribution of sociology to engineering and design. (Button 2000, p. 319)

This methodical assembly of work is called "work practice" which makes visible a 'social machinery of interaction' that a setting's members use to do

and organise their work (Sacks, 1984, Crabtree et al., 2012). Studying work brings out the real world, real time ways in which order is created in a social, local setting. It would also reveal the procedural ways and the sequential order used by members to accomplish work, which may differ from the formal definitions of method such as those found in a manual or textbook. This members' knowledge is methodical in character, and members use it to assemble or put their work together. Rather than theorizing questions and answers, or getting caught up in societal rhetorics and analytical rubrics as normative descriptions of the society, researchers might instead consult the work of a workgroup who, as their day's work, and because they know it as their day's work, will be able to teach us what we could be talking about when we talk about 'work' of a setting (Garfinkel and Wieder 1992).

To understand the real world organization of work, it is key that researchers also satisfy the 'unique adequacy' requirement, that Garfinkel and Weider (1992) talk about. In simple words, the unique adequacy requirement is an instruction which when applied to a setting will help show the 'uniquely adequate' or 'situationally specific' methods used by the members to organize and accomplish work and make it accountable to other members involved. Such methods require researchers to develop 'vulgar competence' in a setting's work. As stated by Garfinkel and Wieder (1992):

> The unique adequacy requirement is identical with the requirement that for analysts to recognize, or identify, or follow the development of, or describe phenomena of order in local production of coherent detail the analyst must be vulgarly competent in the local production and reflexively natural accountability of the phenomena of order he [or she] is 'studying'. We will replace the abbreviation 'studying' with the specific requirement that the analyst be, with others, in a concerted competence of methods [i.e., work practices] with which to recognize, identify, follow, display, and describe phenomena of order in local productions of coherent detail. These [work practices] are uniquely possessed in, and as of, the object's endogenous local production and natural accountability. (Garfinkel and Wieder 1992, p. 182)

Vulgar competence here means 'ordinary, commonly used' competence that researchers develop when observing and immersing themselves in the field of study; they develop a mastery of 'just how it is that a setting's members see and recognise just what is going on around them' (Garfinkel and Weider, 1992, Button et al., 2015), and understand the local practices and knowledge

employed in the work of a setting, that will allow them to describe or give accounts of how work takes place in a setting with real information, and 'without incongruities, errors, absurdities … faking, passing, or hiding out' (Garfinkel, 2002 in Crabtree et al., 2012). The methods used to accomplish work (any activity) are the members' own and not designed by researchers to study such phenomenon. The accounts that the researchers generate then are not mere descriptions of the setting but are explicated features of work that are produced through 'corrigible sketch accounts or detailed depictions of action and interaction being done, the lived work of a setting' (Garfinkel and Wieder 1992, Button et al., 2015). Developing vulgar competence allows researchers to develop an analytic sensibility and a distinctive orientation to the setting under study to be able to understand work from a particular perspective, in case of this thesis, of the crowdworkers.

To develop such competence or appreciation of the work of setting is why the programme of 'ethnomethodological studies of work' was developed and is so relevant here (Garfinkel, 1986, 2001). To be able to develop that 'vulgar competence', to understand how local production of order takes place, what work practices are involved in such work, the local, tacit knowledge and formal organizational arrangements employed to accomplish that work even if with some 'articulation', in the face of everyday contingencies, all in the process of achieving and accomplishing that work. For the purposes of research for this thesis, the researcher immersed themselves in the setting of crowdwork by setting up base in the Indian city of Bengaluru and meeting and talking to the members of the crowd community and getting to learn about their work by whatever means possible. Practically speaking, this required the researcher to conduct observations and walkthroughs of the activities workers performed, undertaken from members' own place of work, and when visiting members' was not feasible, via conferencing technologies and making participants visit researcher's offices. During fieldwork, the researcher was made familiar to the aspects of the activities that took place in the workplace of the workers, where they learnt how it is that they do crowdwork, in a way that they themselves would recognise the accounts of these activities. In developing competence in member's methods, the researcher explicated the interpretive

framework of the members by focusing on the 'reflexivity of accounts' – the 'incarnate' ways in which members make sense of what they and those around them are doing (Czyzewski 1994).

This also brings to attention normative structures in place as dictated by rules and formally prescribed procedures at the setting of work, aimed at producing a desired result by creating a work structure and development of routine at the setting, which we discuss in the next section. How members deal with contingencies and real-time operating conditions by applying local, tacit knowledge, and doing articulation work, to produce and maintain order, may require support of informal rules developed as a 'modification, redefinition or circumvention' of the formal ones (Zimmerman, 1970, Gerson and Star, 1986, Bowers et al., 1995, Button and Sharrock, 1997). Further, chapters four and five explicate the topics of member's methods, as discussed and recognised by the member's themselves as ordinary and mundane part of their crowdworking life. In the next section we shall see some examples of applications of such rules in the face of real time contingencies at various settings of work.

3.5. Ethnomethodologically-informed ethnography and systems design

This section provides an overview of ethnomethodologically-informed ethnography and how it is relevant for design and this thesis. Ethnomethodologically informed ethnographies have created a now long standing tradition in being used to study and understand the nature of work practices, at the workplace and home, to provide accounts of and conceptualise design solutions (Bentley et al., 1992, Hughes et al., 1994, Plowman et al., 1995, Button and Dourish, 1996, the COMIC project).

Following a long running tradition at Xerox, doing ethnography with an analytic orientation to ethnomethodology came quite naturally, for this research. The idea of design at Xerox was based on creating or enhancing technology to make it useful by supporting or enhancing 'native human capacities and practices'. This idea of the 'human centred' philosophy could be

seen applied in computer design at PARC in the mid-1970s, with breakthroughs such as the graphic user interface and the mouse in Xerox's own computers – the Star and the Alto (Szymanski and Whalen 2011). Now for some history: beginning in the mid-1970s, ethnomethodologically-informed ethnography came to Xerox due to John Seely Brown's (social scientist at Xerox) associations with, sociologists such as Harvey Sacks and Harold Garfinkel and anthropologists such as Brigitte Jordan and Jean Lave; and carried further by later scientists such as Bob Anderson, Graham Button and Lucy Suchman (Szymanski & Whalen, 2011). The style of ethnography practiced by scientists at Xerox was heavily influenced by the principles of ethnomethodology that pursued studying the members' methods, collecting naturalistic data in members' own environments through immersion.

> Xerox social scientists have tended to adopt a very distinct analytic stance, beginning with the principle that any social organization or communal gathering, however mundane or exotic, simple or complex, is a local and thus thoroughly endogenous production… Xerox social scientists understood that they confronted a world whose orderly features and properties has been produced by their fellow humans, by the participants in that world and its diverse activities, and that their task as researchers was to then explain, in fine detail, just how this methodically endogenous organization was accomplished (Szymanski & Whalen 2011, p.6).

These studies were 'workscapes' of sorts that studied not just the tasks at work, but workers' entire work and social environments. As Button et al. (2015) summarise, the body of work that came from Xerox on office procedures, airline operations, document retrieval and so on, (Suchman 1983, 1995; Suchman and Trigg 1991; Blomberg et al. 1994, Szymanski and Whalen 2011) employed ethnography in design leading to the development of the idea of 'work practice'. Particularly useful to this discussion is Lucy Suchman's work, where she studied photocopier use and brought to the fore the 'situated' nature of work, making work visible to system designers, computer scientists and bureaucrats. Her seminal work showed that often assumptions are made about work and how it is carried out, whereas studying work's 'situated action' and interaction can bring out the 'actual' ways in which people work, which may not be readily apparent to an outsider (Suchman 1983).

'Workplace studies' of the kind done at Xerox focussed on 'work in-context' and played a formative role in the development of the field of Computer Supported Cooperative Work (CSCW). In this area, Schmidt and Bannon (1992) brought attention to the "distributed" and "interdependent" characteristics of work, enabling researchers to understand and support not just group work, but cooperative and collaborative work carried out by individuals, thus enabling CSCW to study the "collaborative and essentially social character of work" (Crabtree, 2003). They saw CSCW as a "*design oriented research area*" that allowed researchers from multiple fields such as social sciences, computer science and so on, to come together "with the objective of designing adequate computer-based technologies" (Bannon and Schmidt, 1992).

At the heart of 'situated action' and 'workplace studies' are studies of local production of order in an organisational contexts as seen from the studies of workplace technologies and systems, for instance, offices, control rooms and print production (Suchman 1983, 1995, Hughes et al. 1992, 1994, Sommerville et al. 1992, Bowers et al. 1995, Button and Sharrock, 1997, Martin et al., 1997, Button, 2000, Button & Sharrock, 2009, Button et al., 2015). They address the foundational gap between formal organisational studies, emphasizing the key role of rules, plans, procedures, rules, etc. for the accomplishment of work set against the local and concerted achievement of work as an organisationally defeasible accomplishment. As Suchman (1983) puts it:

> The procedural structure of Organizational activities is the product of the orderly work of the office, rather than the reflection of some enduring structure that stands behind that work. (Suchman 1983, p. 321)

To further explain, this section shows how the 'gambit of compliance' plays a role in the social organisation of work and that any sense of work being done according to plans, procedures, rules and any other formal organisation construct or device is an *outcome* of the locally organised work of the members who do it (Bittner, 1965). The section also shows that in cooperative work instances, informal practices and activities can be different from the organizational structure in the normative accounts by using an example from studies conducted by Zimmerman and Pollner (1970 a&b).

Bittner (1965), in his paper, discusses organizational acumen, and formal and informal structures in an organization based on Selznick's idea of studying formal processes and structures in terms of informal goals. Bittner points out that there are certainly limitations of formal rules use, which surface when there is a difference between observed practices and the formal policies and procedures. Bittner thinks it essential to move beyond Selznick's approach of studying just the lexical and theoretical differences between formal and informal rules, and actually investigate the 'limits of manoeuvrability' within such structures and 'study the skill and craftsmanship involved in their use' to get an insight into the 'common-sense constructs' from the settings' members' point of view.

> Without considering some tacit background assumptions that bureaucrats take for granted.. literal interpretation of formal schemes is not only inappropriate but, strictly speaking impossible [..] the formal organizational designs are schemes of interpretation that competent and entitled users can invoke in yet unknown ways whenever it suits their purposes [..] without incurring the risk of sanction, constitute the scheme's methodical use (Bittner 1965, p. 249-250, 272).

Bittner describes 'competence' of a member as being able to "extend to the rule the respect of compliance, while finding in the rule the means for doing whatever needs to be done" (ibid.). Workplaces are filled with idealised systems and workflows that may not work as well on the ground in the face of contingencies, and this is where 'gambit of compliance' and a member's competence comes into play. Tolmie and Rouncefield (2011) provide a simple explanation:

> The basic idea of a gambit of compliance is to find in whatever it is that you are doing the means to account for it as adhering in some way to an organizational policy, edict, concern, expectation, etc. [..] Gambits of compliance typically demonstrate a finely-tuned use of organizational acumen that associates with a through-going understanding of what 'this job', 'this team', 'this unit', 'this business', etc., is really about. (Tolmie and Rouncefield 2011, p.45)

Zimmerman (1970) illustrates this point through the study of work practices of the receptionists in the intake division of the Metropolitan Country Bureau. In his article Zimmerman (1970) asserts that a significant number of observed practices in a setting are not easily reconciled with what the 'formally instituted rules and policies dictate', and in fact, how these rules are interpreted

and applied on the ground by the personnel in real, actual situations maybe very different from the literal prescription these rules, which do not take into account contingencies that present themselves in the moment, at the time of work. At the public offices Zimmerman studied, receptionists were supposed to provide for the orderly and timely pre-processing of applicants, ready to be taken to the next level of assignment to a caseworker. The assignment of an applicant to a case worker took place by following the 'procedure' of allotting candidates to the 'next available cell' in the order they come in – on the matrix in the intake book, from top to bottom and left to right. This intake book matrix consisted of two axes for every day – one for the intake workers on duty, the other for assignments allotted to a given intake worker (typically six, in number), supposed to be filled on a first come, first served basis, in the order in which their processing was initiated by the receptionist. But the allotment of workers was quite different in real time as elaborated by the following cases.

First, when a caseworker hadn't attended two of their three allotted applicants, and was still talking to the first applicant after almost 3.5 hours, the senior receptionist decided to move the third applicant to a different case worker to keep the ball rolling, temporarily suspending and deviating from the rule of 'take each case in the order they come'. Second, when a caseworker picked up the task assigned to another caseworker at the personal request of the applicant (owing to their prior contact with each other and the caseworker's preference of the kind of case), the senior receptionist cautiously allowed for a 'one-time only' exceptional switch to avoid a dispute, of making an issue of procedural correctness, though there was no visible danger to the pacing or flow of work. Finally, a covert, unofficial arrangement had been made between the receptionists and a particular caseworker, who was good at handling 'problem' cases, to handle troublesome applicants. The arrangement was concealed to allow for continued discretion of the receptionists in handling such cases, to avoid potential claims from other caseworkers, and for the assignment to be viewed as 'normal' or procedural.

The purpose of the rule here for the receptionists was to accomplish a 'smooth flow of work' to support the intake or case workers, avoiding disruptions for everyone involved, organizing the proper utilization of the 'caseworker as a

resource', all by scheduling and timely coordinating the tasks related to the applicants. But this 'allotment' was contingent upon many factors, which sometimes led to the receptionists following a different task structure than what they see as 'normal' calling upon their experience and judgement. The receptionists made a judgement call as to which situation it was relevant for them to apply the rule of orderly case assignment literally, and where it needed to be modified to suit the situation, and still be seen as 'reasonable', to be able to accomplish the purpose it was created for, namely, to ensure 'normal pacing' and 'flow of work'.

What Zimmerman describes above are the workarounds followed by the workers to get the 'job of keeping applicants moving' run smoothly. To accomplish this, the workers had to *articulate* - "allocate, coordinate, schedule, divide" - their individual activities to collectively achieve 'a smooth flow' of work. This mechanism of 'mutual dependence' and 'cooperation' between workers in a setting is what the CSCW community refers to as 'articulation work' (Strauss et al., 1985, Gerson and Star, 1986, Strauss 1988, Schmidt & Bannon, 1992). Gerson and Star (1986) describe 'articulation' as:

> Articulation consists of all the tasks involved in assembling, scheduling, monitoring, and coordinating all of the steps necessary to complete a production task. This means carrying trough a course of action despite local contingencies, unanticipated glitches, incommensurate opinions and beliefs, or inadequate knowledge of local circumstances. (Gerson and Star 1986, p. 266)

Due to the complex, distributed and diverse nature of work, people apply various 'mechanisms of interaction' to support articulation work in the form of organizational structures (formal and informal), standard operating procedures, plans and schedules, and conceptual schemes (Schmidt & Bannon, 1992). Articulation work trades on ad hoc collaboration and assistance between parties involved, and hence, to understand work and its real time character in any setting, it is important to study how 'articulation work' takes place between the members of that setting. Organizational plans and procedures are put in place to coordinate work in the workplace, but they do not provide step by step instruction as to 'what-to-do-now' and 'what-to-do-next'. Rather rules and procedures provide general guidelines for how things should go and what

should work come to in the end (Suchman 1989), as demonstrated with examples from Zimmerman (1970) and studies in the print industry below (Bowers et al., 1995, Button and Sharrock, 1997). Members' 'practiced grasp' of plans and procedures allows them to use the necessary actions with competence to produce and re-produce a normalcy in the state of affairs as well as to see and deal with 'situational exigencies'. These exemplar studies show how members bring about order in their local actions and interactions, methodically so, and that these methods are not equivalent to plans, procedures, rules, etc., rather such constructs rely on an unexplicated domain of members' methods that are taken for granted and ignored in formal organisation studies. Quoting Suchman (1989):

> Careful observation of what actually goes on in offices [etc.] ... reveals that these 'unstructured' activities involve both fine-grained structures and, more importantly, a crucial and unacknowledged form of expertise (Suchman 1989 in Crabtree 2003, p. 37).

Suchman's early research interests involved the local or *situated* nature of work (Suchman, 1987), and demonstrated the problematic character of formal constructs, the mismatch between the intended use of computing systems and the methods of the members (people who use these systems) as they organised and interacted with them; which has also been manifest in a range of workplace studies. In one of the famous case studies, she recorded interactions between the expert help system of a photocopier machine and people trying to use it at PARC. The expert help system presented users with a set of 'sequential' or 'stepwise order' of procedures on how to use the photocopier, as well as providing feedback on the job's status (Button et al., 2015). This sequencing of instructions, such that each 'next' instruction is presented upon user's completion of the last, depended on a 'plan' set by the machine or the user. The video study "When User Hits Machine" showed that Suchman's users were trying to follow a plan for photocopying some documents, but were baffled and confused by the machines' instructions and behaviour, hence producing poor results. Suchman believed that this was because of the difference between "the designers' idea of how plans are ideally made and executed, and how they are actually made and executed in practice" (Suchman, 1987, Duguid, 2012).

Ethnomethodologists have found through their studies that members of a setting set and pursue goals, and to accomplish work, and in the course of doing that, draw upon their local, situated conditions and contingencies, which they turn 'improvisationally' (workaround) to support their work by using them as 'communicative and sense-making resources', which machines are generally unable to understand or follow as they run on a pre-designed plan, (Suchman, 1987, Duguid, 2012). Suchman (1987) points out the relevance of 'situated action' to design here:

> The behavioural science and commonsense that supports the design of interactive artifacts treats a plan as something located in the actor's head, which directs his or her behavior. In contrast, this study adopts a view of plans just as formulations of antecedent conditions and consequences of action, which account for action in a plausible way. Stated in advance, plans are necessarily vague, insofar as they are designed to accommodate the unforeseeable contingencies of actual situations of action… As ways of talking about action, plans per se neither determine the actual course of situated action, nor adequately reconstruct it. While for purposes of practical action this fact is uninteresting, for purposes of a science of practical action it is crucial. Specifically, if we are interested in situated action itself, we need to look at how it is that actors use the circumstances that a particular occasion provides-including, but crucially not reducible to, formulations like plans-to provide for their action's developing purpose and intelligibility. (Suchman 1987, p.4-5)

Suchman's greatest contribution to systems design, was to **'create a more intimate view of the workplace landscape'**, so that researchers can **'make work visible'** and computers could support **'how it is that members actually do their work'** (Suchman, 1995). Chapter five unearths these prospective-retrospective plans, aspirations and ad hoc actions taken by members of the crowdwork community, in the face of multiple contingencies. The ignorance of these members' methods is of consequence to design. CSCW research has been dedicated to studying the workplace, and provides many exemplars of cautionary tales when technology is designed for a workplace with inadequate understanding or regard for the work or the workers who have to use it, which lead to various issues, raising questions about the practicality and sustainability of such systems (Schmidt and Bannon 1992; Suchman 1987; Sommerville et

al. 1992). One such example comes from the print industry: print production on the shopfloor (Bowers et al., 1995, Button & Sharrock, 1997).

Bowers and colleagues (Bowers et al., 1995) studied workflow through the use of a Management Information System (MIS) in a print industry shopfloor. The MIS came with 'real time shopfloor data-capture' that monitored workflow and provided reports for monthly 'audit' meetings, to support process management, cross-site monitoring and quality control by the client. The study of the company's personnel's organisation of their 'working day' suggested that the work on the shopfloor was organised around maintaining 'a smooth flow of work' for everyone involved – customer facing front end, reprographic services' back end, and the customers themselves, which meant ensuring even distribution of work across operators, machines and jobs. The researchers identified that the 'smooth flow' was accomplished by the personnel in practice, in real time by: scheduling, allocating and prioritising work based on skill and availability, anticipating work - keeping themselves and their machines ready or in use, supporting each other's work - by being attentive to each other's needs, for instance, by discussing each other's workload, knowing the machines – ensuring that the 'right sounds' were coming from the machines, remedying issues such as empty paper trays and paper jams, identifying and allocating interruptible work e.g., when an unanticipated labour-intensive job arrived it was split between two operators 'through local agreement on the shopfloor'. The researchers discovered that the workflow system actually disrupted the smooth flow of work and raised quite a few dilemmas and problems for them to deal with, namely, (1) the imposition of procedure, i.e., how a job jumped the gun (by splitting it between two operators or starting a job before formal order forms were received) could not be made visible using the workflow, leading to either inaccurate or obsolete information being provided by the MIS (2) the print processes on the MIS depicted jobs as a series of processes, with each job being the responsibility of just one operator, and each job needing to end before the next commenced, meaning a worker could not engage in both scanning and printing of different jobs at the same time; whereas in reality workers constantly 'ad-hoced' and juggled their jobs (3) the overhead of using the MIS to log activities using

different codes, and the issue of non-calibration of logging with the actual time spent on the job, i.e., twenty thousand copies required approximately the same time to record as two copies. (4) the individualization of work, i.e., the MIS assumed the print processes to be the responsibility of individual operators, making, ad-hoc, and shared work invisible to the client.

The researchers found that the sites dealt with massive contingencies as an integral part of working on the shopfloor, encountered a great variety in the kind of printwork requested of them received at little or no notice, which had varying degrees of importance to the customer, and widely different deadlines. The front office staff were quite aware of these contingencies and tried their best to support the shopfloor personnel. The MIS didn't allow for 'articulation work', assumed that the print jobs ran as a continual linear process, whereas work on the shopfloor was distributed and interdependent, and traded on ad hoc collaboration and assistance from everyone involved, thus creating problems in the formal organization of work (Strauss, 1985, Gerson & Star, 1986, Bannon & Schmidt 1992). Workers were thus found to have abandoned or manoeuvred around the new technology to organize and fit their work into the new system; hence, making clear that the print company personnel felt forced to work with a system that was inappropriately designed to support their work and workflow and did not cater to the local methods of the printworkers nor support the already existing local methods of production in the setting.

Button & Sharrock's (1997) article proves to be instructive and provides a cautionary tale for system designers. The printer company was contemplating networking twenty of its Print Centres, giving them the possibility of redesigning the organisation with many possible commercial advantages. But in order to do that the company would have had to turn its twenty sites into "one large 'virtual' print factory with a centralised management of production across the network", but if they were organised on a site-to-site basis, they could still coordinate their production through the network. Now the company had two obligations: a maximum 10 day turnaround time on orders and keeping the plant at full production. To fulfil these obligations, and maintain a smooth flow of work, the managers had to produce a schedule for the jobs, orient themselves to a sequential order in the print production process, monitor

the demand on the machines, recognise the order in jobs that needed to move between processes and track the job's progress – all of which consisted of many tasks and subtasks requiring, extensive communication and coordination between members, and extensive contingent and remedial practices to be followed on the spot.

Organizational tools or artefacts were employed to support this work. For instance, a forward-loading-board was used by the administrative manager to calculate, take decisions and work out an order for production for the jobs every day, by using it to make projections, see past decisions, and create 'what if' scenarios. A work-ticket made up of a list of job specifications was created by the manager and editors; on it were details of the customer order such as the origin, printing, finishing or dispatch of the job. The work-ticket went on the work-bag that contained a hard copy, job request form and other details. The work-ticket was one of the key artefacts to maintain a sequential order of the print production process as it contained information regarding the 'relevant' next activity of the job in question, as well as exposed the resources required for the jobs to take place. It also allowed managers to track and review the jobs, and their position within the production cycle.

The administration managers also monitored the demand on the shopfloor personnel and the machines to establish whether there might be any potential problems that could hold up or delay the print production such as through a log-jam or overloading of a particular printer machine. To support this part of the process, managers used paper strips stuck on a board sequentially to display a list of jobs for each machine. These paper-strips could be moved around and re-ordered based on situations on the ground and demands on the machine. Another crucial part of the process was that the jobs remained recognizable once they were completed or part-completed. Pallets of printed paper of jobs were placed behind the machines or in the finishing area, and to make them recognizable a 'job-flag' was created, which was essentially a large piece of paper inserted between the piles of paper displaying details of the job. Although placed in specific areas such as the manager's desk, these artefacts were publicly displayed for anyone – managers and shopfloor operators - to inspect and consult.

It was thus seen that the order of production was an 'on-going', continuous process; it needed to be revisable, sometimes at extremely short notice, and 'physically' visible at-a-glance at the lowest local management level – which would not be possible if the sites were networked or centrally organised. The network and information systems did not address the need for extreme local coordination in work and played down the need for different types of communication – visual, oral, gestural. Button and Sharrock point out that there is an 'entwined relationship' between the design of such systems and the setup of the organization itself. They caution the designers of the systems that before they designed a centralised system, which no doubts would have some benefits, they must try and understand the practices that take place at the local management level of the print production; otherwise, it would compromise the work they do, and would need a 're-design' of the organisation.

With the development of computing, systems design research has grown and diversified over the years. Systems design recognizes that in the fields of HCI and CSCW computing systems any work is essentially social in character (Crabtree, 2003). The role of ethnomethodologically informed ethnographies has been to 'make work visible', using Suchman's phrase, so that the work can be supported by design, if necessary (Suchman, 1995). This has been illustrated by many studies that came to follow this tradition, for instance, the works of Christian Heath, Paul Luff and John Hindmarsh, works of researchers from Lancaster University, known to have been leveraged in and by design.

In the academia, Heath and Luff's (1991) work on the London Underground showed the London underground train control as an 'on-going situated activity', by showing, for example, that for the two control workers it was important to be aware and be able to demonstrate their work to each other while carrying out that work, which they could do by pointing to, nodding towards or staring at a shared line control diagram on the wall. Heath and Luff pointed out aspects of this work to system designers that could be supported by computer-based design, such as supporting the provision of awareness information and interaction on what co-workers were doing by allowing workers to be able to see a shared line control diagram rather than have individual workers have individual diagrams on a computer screen.

In this regard, the role of 'implications of design' is an issue that has been raised quite often. In an IEEE article, Charette tells us that "we waste billions of dollars every year on entirely preventable mistakes", giving a number of examples from industry and government projects (Charette 2005). Another report estimates the annual cost of IT project failure to run between 3 and 6 trillion globally (Krigsman 2012), and an estimated success rate of software development in the industry to be a mere 39% (Standish Group 2013). We see from the examples of the print industry studies as to how the system doesn't work for its members, and in one case, instead of supporting its members it demands extra support to make it work, using workarounds, and making the true processes and procedures followed on the ground invisible, just to appease the system. Button et al. (2015) summarize the problems software development faces in the industry as follows:

> Amongst a litany of technical problems, report after report places 'people issues' high on the list: 'lack of user involvement', 'poor user input', 'vague requirements' and other variations on these themes are longstanding issues frequently cited even today as major causes of project failure. (Button et al. 2015, p. 152)

Air traffic control (ATC) studies-based papers from Lancaster University published in the early 1990s (e.g. Hughes et al. 1992, Bentley et al. 1992, Sommerville et al. 1992) were the first that tried to use ethnography to gather insights and inform design, and were the forerunners in testing and establishing the usefulness of ethnography in supporting systems design in Europe as seen through the COMIC project (COMIC 2.1, 1993, 2.2, 1994 and 2.4,1995). These papers contained details of the ethnographic studies, as well as descriptions of how ethnographic data could be used to inform prototype designs and be presented to software engineers to support the work of ATC controllers. For instance, Sommerville et al. (1992) described how ethnography provided solid insights by showing the ways in which air traffic controllers organised and managed the flow of aircraft through the skies:

> The ethnographic studies have already revealed a number of subtle system requirements which are unlikely to have been derived from a conventional requirements analysis process. For example, in studies of air-traffic control, we have discovered that apparently repetitive tasks such as rearranging paper strips representing aircraft being controlled, are a key part of the activity in that the manual

> manipulation serves to bring problems and details to the controllers attention. Furthermore, we have discovered much cooperation between controllers is implicit and relies on 'at-a-glance' understanding of other controllers' workspace (Hughes et al. 1992, p.117).

The earliest ideas were put forward by Hughes et al. (1994) at Lancaster University, where they outlined some configurations of ethnography to suit fast-paced design processes, discussing how and where ethnographic studies could fit into systems design life-cycle, and what could the nature of such studies, their field sites, the duration of the study and so on. These configurations were: (1) Assumptions testing – drawing from existing work, the approach would help 'unravel and make explicit the assumptions that design concepts trade' about particular settings and technologies (2) Sensitising studies – provide 'snapshots of a setting's work' such as through prototyping and short studies to elaborate on the reasoning and 'workability' of design concepts (Twidale et al., 1994) (3) Concurrent Ethnography – studies that run 'concurrent' to the systems development process and 'focus on a setting's work salient to the task to hand' (4) Quick and Dirty Ethnography – that help provide an overview of the work of a setting (5) Evaluative Ethnography – that evaluate and provide 'sanity checks and rigorous assessments of a developed solution' and (6) Re-examination of Previous Studies – 'to assemble a corpus of studies[20] that may be drawn upon to identify common issues across a variety of domains' (Crabtree, 2003, Crabtree et al., 2012).

The role of ethnomethodologically informed ethnographies has been addressed time and again in the HCI and CSCW community (e.g. Hughes et al., 1994, Plowman et al., 1995, Button and Dourish, 1996). Computer-use has emerged and is not limited to professional at-work purposes, but in other social settings such as the home, following the ubiquitous nature of computing systems. The workplace as well has moved from traditional office-space settings into public settings such as homes, cafes and simply anywhere on-the-go. This movement called for research to follow computer systems into the social realm, and study non-workplace activities. Studies in this area included home as site for

[20] For more details see Crabtree, 2003.

computing (O'Brien & Rodden, 1997), set top boxes (O'Brien et al., 1999), the home network (Tolmie et al., 2007), ubiquitous computing in the home (Tolmie et al., 2010), books (Rouncefield & Tolmie, 2012), mail (Harper et al., 2003), photos (Crabtree et al., 2004), museums (Hindmarsh et al., 2005), assistive technologies (Dewsbury et al., 2004) and many others. All of which show a parallel interest of systems design in using ethnomethodological ethnographies in studying non-workplace activities for the purposes of supporting non-workplace design.

Going back to the print industry examples, by studying the practices on the ground, researchers were able to generate insights into the real time workflow and processes, contingency management, and complex co-ordination between different jobs on the shopfloor, vital to ensuring that the machines were fully utilised. The studies brought out the articulation work that workers had to carry out to work around the unanticipated circumstances that presented themselves at work, while trying to maintain a formal order to 'get the job done' (Gerson & Star, 1986). This thesis makes examines crowdwork by turning to the members[21]' methods of "how action is ordered" (Dourish & Button, 1998, Button et al., 2015). There is a great deal to be learnt from the insights of such distinctive methods, which could provide resources for building the social into systems design (ibid.). These learnings: the "empirical details of the machineries of interaction" and the sequential order of work, when studied with a distinctive focus of ethnomethodology as an analytic lens, help design be grounded in real world, real time 'facts'. Ethnographic findings help generate more than just a form of 'requirements analysis' (Dourish, 2006, Button et al., 2015). In fact, such findings sensitise and share knowledge of the work and the members' practices with the broader community of designers, academia and industry, and "calibrate the fit of technologies with the situated circumstances of their use" by highlighting key features of work and supplying user requirements, during discussions of 'what should be built' (Crabtree et al., 2012). Knowledge in the form of features of coordination amongst members for work, plans and procedures followed by them, methods to create awareness about work and so on, might not be easily available to designers, but can be

[21] Here implying, crowdworkers.

brought to them by ethnographic work (ibid.). Based on such an ethnographic tradition, this thesis presents insights in the Chapters four and five, and a discussion on implications for design for crowdwork systems in Chapter six, to generate a set of specific and generic user requirements and recommendations for designers to support the work of crowdwork.

3.6. Summary

The preceding literature aims to show the methodology, more specifically the 'kind of ethnography' that has been employed to undertake this research. The literature also seeks to describe the role of ethnomethodology as the analytic lens for this thesis, as well as describes by way of multiple examples the relationship between ethnomethodology and systems design. The chapter begins by providing practical details of how data was collection in this tradition, through ethnography, in naturalistic settings for crowdwork. This chapter also demonstrates the existing knowledge base that has shown how ethnography has been useful for design.

Ethnomethodological ethnographic studies of work bring to surface the underlying local knowledge and practices that are involved in everyday mundaneprocesses of crowdworking followed by the members, of the crowdsourcing community in India. Data thus collected is 'indexical' (or situated) to the setting of crowdwork and provides 'corrigible sketches' of the structure, work and organisation of everyday activities of the crowdworkers, which can be verified by the members Since the data is indexical, we can begin to map out the practicalities and the situated work of crowdwork and surface what works and doesn't work in the current model of crowdwork and, how workers organize and 'get things done' in the face of local contingencies, and what they are. Understanding these practices would enable the production of implications for design and design recommendations, for the CSCW, HCI and crowdsourcing community, which could be used to support the work of crowdwork.

The analytical descriptions from the data can be drawn out to help designers provide practical support to the system as well as, support the development and improvement of existing and new socio-technical systems that are accountable to the members of the setting of crowdwork and its organisation. The next two chapters, 'Becoming a turker' and 'Doing the work' aim to shed light on some aspects of crowdwork – such as motives of the crowdworkers, the pathways to finding a crowdsourcing platform, and details of what entails 'work' by first understanding the underlying interpretive framework through the documentary method of interpretation, as recognised and discussed by the members' themselves of work as it is undertaken in the 'here and now', then providing a rich description of these members methods to focus to bring to light the subtleties and nuances of what constitutes the work of doing crowdwork, and being a crowdworker.

4. Becoming a turker

Chapters four and five are the 'findings' chapters of this thesis. Chapter 4 derives its analytic description mostly from data collected through interviews, where crowdworkers reflect upon some of the actions they took and how those changed over time or amounted to where they are now with regard to crowdwork. It might be asked as to how the researcher developed 'vulgar competence' here, to understand the local production of order, especially since the analysis here is guided by data collected through interviews? The answer would be: by listening to crowdworkers describe the work they have done, and actively interviewing them during walkthrough exercises and getting to know what went on, on their crowd platform accounts, personal email and social media accounts, and other digital and physical artefacts. By observing crowdworkers perform crowdwork in their place of work – where they searched for and made decisions about the work they wanted to do. By observing them monitor their 'work situation' and anticipate the possible next steps they could take and watch them take (or not) those next steps. By getting a walkthrough of the digital (and physical) tools they use to support the work of crowdwork and see some of them in action. By 'bracketing' or asking the crowdworkers questions about the seemingly mundane actions they take while doing crowdwork (Crabtree et a., 2012).

The researcher in this case developed vulgar competence in the work of crowdwork by immersive themselves in the setting and collecting data by conducting 32 virtual interviews, 3 in-person interviews, and 12 observations at 5 different locations as described in section 3.2. There is also the matter of the practical problem of collecting data about events of the past. To gather an understanding of how people had come to be crowdworkers, the activities, the reasoning, the pathways that led them here - is all information that cannot be gained through observational studies as these events occurred in the past. Hence, the use of interviews to collect this data, which doesn't restrict our understanding of the practicalities of crowdworking, instead, is very crucial to

gather an understanding of their journey as a crowdworker and serves as a precursor to understanding the 'doing of the work' itself.

4.1. Chapter Overview

This chapter describes how a person becomes a turker, and focuses on how people come to be turkers and why, and the motives that shape their journeys. This chapter also elaborates on the various pathways people take to reach MTurk[22] - the platform and become turkers. The analytic concern here resonates with Howard Becker's interactionism which provides an understanding of what people do and how they *come* to do it (Becker, 1963).

The first section describes the manifold motives of turkers. These motives don't imply the causes for turking but the reasons people give to account for how they came to be involved with AMT. This research uses motives as a member's resource to investigate an organizational phenomenon, namely, crowdworking. Motives here are reflexive accounts of past events produced by members and their discussion of motives opens up our understanding of the organization of crowdsourcing and crowdwork, by making it account-able (Czyzewski 1994). This thesis is concerned with motives-as-accounts provided by members who participate in this organisational phenomenon not motives as causal explanations, seeking to explain actions taken, assuming motives to be 'springs of action'. Since these motives are mundane features of everyday life, it is of no consequence that these accounts are being collected after-the-fact much through retrospection and introspection, in fact, through a retrospective-prospective review of events, members are able to make sense of the underlying features and character of the work they want to, are, have been doing [Sharrock and Watson 1984].

Part of developing an understanding of this organizational phenomenon is also generated by the pathways that lead workers to become a turker, which analyses past occurrences of investigations, purchasing information and referring crowdwork to newer members of the community to help us explain the crowdworkers' current standing. It also describes why they specifically

[22] AMT, Amazon Mechanical Turk

chose Amazon Mechanical Turk to find work, and the special features of the platform which made it *the platform* for turkers to do crowdwork.

4.2. Heterogeneity in motives

This section gives a description of the various reasons why people began turking, and what made them continue turking over time. It is not surprising to find that the primary reasons to turk were: 1) to earn money 2) to find work 3) for 'timepass', similar to the results of the surveys described in the literature (Ross et al., 2010, Iperiotis, 2010). However, these motives were shaped by numerous aspects such as the differential values turkers placed on 'work', their personal circumstances, abilities and skills of turkers and the availability of work on AMT. Some turkers saw this work as 'special' and had emotional and moral attachments with it; others saw the work as any other and were only showed attachment to the work for the money. This section explains how turkers reasoned about turking and what they believed to gain out of it.

Turking for job and money

Turking provided easy access to a wide range of jobs, and subsequently opportunities to make money. Turking was predominantly seen as 'work' or a 'job', in a sense similar to a 'profession' or a 'career', which may come as a surprise, but was in fact one of the most widespread motive for turking. Some turkers even reported inserting 'Amazon Mechanical Turk' in the field of employer on their LinkedIn and Facebook profiles and to their offline CVs as well, as they regarded turking to be 'like a job'. When asked 'why do you turk', many turkers seemed surprised with the question. It is possible they thought 'why does anyone do a job?'



Figure 5: Workers using AMT in their employer fields on Facebook and LinkedIn.

Some reported AMT being very 'strange' for them when they first saw it, as they found jobs that were 'interesting' and 'amusing', which probably went against their 'idea of work' characterized as being boring, where one couldn't learn anything or be respected for one's ideas or opinions.

Turking allowed turkers to work full-time (35 – 40 hours every week), part-time (10 – 20 hours every week) or sporadically which meant turking happened whenever their personal circumstances allowed it to. If they required more money, they could work more time turking. As a job, turking allowed turkers to be their own boss, as this quote illustrates:

> Bharat, a full-time turker, said in a phone interview: "In MTurk, I am the boss, I am a owner – I feel like that." (transcribed)

It relieved turkers of the rigid structure and hierarchy they experienced in an office job, where they worked as subordinates. On introduction to AMT, most turkers saw it as a platform that provided jobs, not as a marketplace for work, and hence, they expected a typical white collar work environment with turking – which meant having limited or no access to one's boss, following organizational hierarchy with a Superior-subordinate culture. But turking flattened out the organisational layers for them as Luke's quote below illustrates. The platform placed him in direct contact with his employers; in this case – the requesters, who they could communicate with directly, and the requesters responded to their queries, which gave turkers a good impression about AMT.

> Luke, a full-time turker, reported during an in-person interview and walkthrough exercise: "There is 1 requester who uploads more than 50,000 HITs. Rob Mark, I think. There was no comment nothing (on turkopticon) but it was slave labour. What I did was I communicated with that person directly – 'I am afraid of rejection and how are you going to deal with it'. He replied that day itself. 'Don't be afraid'." (transcribed)

They found dignity of labour in turking, by getting the chance to choose their own work times, and not being a part of allotted workload or schedules by an employer who monitored them constantly.

> Vishnu, a part-time turker, said during a phone interview: "Mturk makes me independent. I don't have to bow down in front of anyone. The timings are mine, I can work anytime I like." (translated from Tamil)

Although turkers were often ignored by requesters, they attributed it to them being busy and not that they did not care. As per their experience, the majority of the requesters had reverted with a response when turkers contacted them with important questions, unless they were 'bad requesters'.

Turkers took pleasure in the work they were doing. Turkers had the opportunity to have a decent free time, outside of work hours. Interestingly, turkers didn't plan to stick to turking as their sole or standard form of employment, as they found it to be unstable and insecure. Turking was part of a transitional phase in their professional lives, something of a job between jobs, or an interesting job after graduation.

Turkers were unsure of their plans with turking; due to the uncertainty and opacity of the platform's operations and the uncertainty of continuing to own an AMT account in the future.

Turkers saw turking as a 'home-based job' that allowed them to earn from home. They viewed the work as predominantly white collared as it was 'computer-based' work, but the other aspects such as finding work, payment, uncertainty around the availability of work, instability of the platform made it seem like blue collar work due to the sheer amount of effort required by them. Turkers made plans for their future careers either on the basis of the work they had done on AMT (e.g. translation, transcription), for instance, by using it on their CVs, or used the turk-money to, for instance, set-up a business. Most turkers still aspired to find work 'in their own field', i.e., pursue careers in the areas they graduated in, e.g. computer science, electronics and so on.

The driving factor for turkers, notwithstanding the employment opportunity it offered, was the money turkers made from it. Turking allowed people to draw a salary and make a living out of turk-money. Turkers calculated a desirable salary based on factors such as time and effort spent on doing the job (details of this calculation are provided in the next chapter), and were able to set monetary targets or expectations for a minimum or average income.

How turkers spent the turk-money was a not a unique feature of turking since it was treated as 'salary', which was comparable to pay from any other job, and so the dispensing of turk-money depended on the turkers' monetary needs, personal responsibilities and preferences. Most turkers with dependent family members spent turk-money on children's tuition, monthly bills, insurance premiums and future investments, much like salary from any job. Female[23] turkers mostly used AMT as supplementary income for the household, not for individual expenses, and used it to buy home appliances, gold jewellery and big expenses for the family; whereas, students and graduates used turk-money for buying digital devices and gadgets, entertainment and going out, or saved it for the future. A few turkers even invested in turking by buying hardware such as computers, mobile devices or computer accessories and mobile internet devices.

> Salman, a part-time turker, chipped in during his friend's observation study: "I didn't operate the system (PC) a lot before, now I do. We didn't even have a system at home. When Mansoor said about AMT, I saw him, saw him earn, & after 2–3 months I bought a system. Then started learning slowly." (translated from Hindi)

Taking Salman's instance, he got inspired by his friend Mansoor who was a full-time turker. Salman studied turking under him and confirmed its earning potential by studying Mansoor and decided to invest in a computer and start doing crowdwork himself.

For Timepass

'Timepass' is a vernacular term in India, which as a norm means - doing something for entertainment or leisure and not making a productive use of

[23] Note that most turkers of this study were male.

one's time[24]. It is interesting that even with an added monetary and moral value to turking, turkers still called it 'Timepass'. When asked 'why do you turk', many turkers responded 'for timepass.. and.. I get money'. Although many people turked to 'keep themselves occupied', they inadvertently found avenues of personal and professional development (described in the next sub-sections). Quite a few turkers discussed turking in a didactic sense, and provided examples of activities they would be doing if they were not turking; for example, watching videos on YouTube, television, hanging out with friends, but these were not considered 'good' things to do. 'Good' here implied productive, a turn on the moral sense of the word. It was considered good to be busy, to be 'doing something', 'earning something', over not doing anything, or spending all of the free time on purely unproductive, entertainment-based activities. Turkers would rather turk than watch TV, gossip or sit idle as these had negative connotations of 'wasting time' attached to it, whereas 'earning' and 'working' was seen as positive, as this quote illustrates:

> Swati, a full-time stay-at-home wife and turker, said in a phone interview: "It is a sit-at-home income for me. I get knowledge and do timepass at the same time. Besides 'khaali dimaag shaitan ka ghar' (An idle mind is a devils workshop). I don't gossip because I don't have to go out during free time, I have work to do." (translated from Hindi)

Swati is from a village in Orissa. She turks after sending her 5 year old daughter to school and in-between household work and attending to her family. Turking is not regular work for her, more of a hobby with benefits. Lazy or frivolous ways of spending time were common, but frowned upon, especially so for house-bound women. They were stereotyped gossip-mongers and Swati disliked the stereotype. In her mind, she found turking to be a better channel for spending her time, as it afforded her to avoid the undesirable practice of socializing for gossip.

Some turkers albeit knowing that there was a gap between their formal education and the skills required on AMT, preferred doing crowdwork as they

[24] Sometimes unemployed persons are often referred to as 'doing Timepass' even though they may be keeping themselves occupied & are productive by doing unpaid work or general chores. In this case, it is more a reference to not having a stable permanent job.

found the tasks to be interesting, and not just the means for earning money or timepass, as Bala's vignette illustrates.

> Bala, a full-time turker and new mother from South India, said in a skype interview : "There is no connection between my previous job and this work but my studies have been in the computer science field only [..] for me this is more interesting than my previous job. Because its system-oriented work (computer-based work) and day-by-day we are actually doing different, interesting tasks." (transcribed)

Pranav, a retiree living in a small village, followed the philosophy of 'something is better than nothing', money earned from turking offered him financial independence by providing him with spending power, on top his pension, which was a meagre Rupees 2000 per month. He didn't have monetary or intellectual goals, and didn't take AMT work too seriously, yet he was making 'something' out of turking which was now a part of his post-retirement life; in his own words:

> Pranav, a retired turker, said in a phone interview: "You are sitting idle and earning. You are doing 'timepass' and are earning money. They say the amount is very less, but I say even if it is less 'so what?' you are getting something, right? If you don't do anything you earn nothing, you'll have zero income. So I am happy with this." (translated from Hindi)

Pin money

A few turkers used AMT as pin money or a supplementary source of income. They had a job other than turking which was their main source of income. The main job was either a conventional job acquired based on skill and education, or a job as a self-employed person, entrepreneur or a casual employee. Women who were once employed and quit work, as a stay-at-home wife or mother, saw the income from AMT as a combination of factors – of money, work, timepass, and an income to supplement that of the husband's. During a walkthrough exercise and interview, Elango gives us a count the jobs he is currently employed in, in the order of their importance (due to their earning potential) and where crowdwork stands in relation to his other jobs.

> Elango, a part-time turker: "If you take a month – 5 or 6 days there'll be decoration work – wedding decoration, rest of the days I'll be here doing service work (computer

> hardware repair job). [..] I used to teach, in a local computer education company – C++, Java, have given up most of it except AutoCAD, I am still called to teach AutoCAD every now and then (there is)… MTurk." (translated from Tamil)

Turk-money didn't add a huge sum to the incomes of workers – as these turkers spent more time working on their other jobs and turked only when they had time to spare. In a way it helped pay for itself, by taking care of internet costs and electricity bills every month. Expenditure of the supplementary income was varied too; spent on nice-to-haves, bills, and in one case, even for charity. Pin money was also saved for regular, daily incidental expenses such as travel, food and entertainment, as well as for impending or special circumstances such as saving up for future college tuition fee, much like money earned through any other form of employment. It was also used as an allowance given by turkers to their dependents or elders for personal expenditure. A few turkers also planned to invest their turk-money into new businesses, entrepreneurial ventures and stock markets. What is interesting is, that in India, whatever the reason to take up crowdwork, workers were able to use the money from it favourably in climbing the socio-economic ladder or supporting themselves in some way.

Apart from the prime motives of money, work, and timepass, described above, turkers found benefits of personal and professional development that allowed them engage with turking long after their first encounters; these can considered as secondary motives and are described below.

4.2.1. Professional development

This section describes the professional benefits turkers found in doing crowdwork. They developed competence and skills in areas such as programming and computing, soft skills, communication in English, and skills in digital literacy - surfing the internet and using a computer. Some turkers also derived dignity of labour and job satisfaction from the relationships with requesters and fellow-turkers (not necessarily from turk-work per se).

Developing competence

Quite a few turkers used AMT as a means to learn new skills. These turkers placed importance on the kind of tasks they wanted to work on, refine existing talent or get technical expertise in fields like writing or computing.

With problem-solving and technical work, tasks were limited to those requiring basic knowledge of the subject. Turkers felt apprehensive of tasks requiring advanced skills available on freelancer.com or Odesk. Turkers with limited exposure to English and netiquettes[25] used turking as a channel to get exposed to, and, practice communicating with strangers they have never met, via emails or on forums, and learnt to get over their insecurities and fear of interacting in the English language. Turkers also developed competence in digital literacy while turking: such as operating a computer, using a device (mobile or computer) for downloading and running software, using the internet to find information and complete tasks. Doing crowdwork made turkers feel self-reliant, boosted their self-confidence and helped develop their soft skills. Salman, a part-time turker, speaks about crowdworking with gratitude, during an in-person interview.

> Salman: "There have been changes in the way I operate, there has been personality development, have become better at emailing and can communicate, I can sit at home and earn – I have that confidence now – In the future I can do any job." (translated from Hindi)

Turking allowed turkers to improve on and even learn foreign languages such as German and Spanish, polish a talent such as writing or gaming and enhance general mathematical, scientific problem-solving skills as well as, software programming or testing skills.

The more turkers worked on a particular type of task frequently the more they felt confident about it. Continued work and repetitive practice of certain tasks gave them an increased familiarity and proficiency in them. It also enhanced their speed, efficiency and performance by allowing them to complete large

[25] etiquettes in interacting online

numbers of the same tasks (batch work), in turn, allowing them to make money.

Job satisfaction

Turking provided job satisfaction to turkers. Turkers felt they could be 'their own boss' and choose their own work hours (although this depended on the availability of 'suitable' work and turkers' personal situation and need for turking). Turkers didn't have managers looking over their shoulders and were able to manage their workload with some autonomy, which made them happy. Turking placed them in direct contact with their employers (requesters) which provided them gratification as they were communicating with Americans – whom they regarded highly, and also, they felt that they were making a contribution, and they and their work was valued by the employer (requester). Turkers got a sense of self-affirmation from turking and felt that they were contributing to something useful. Turkers could relate to requesters who were start-ups and small businesses in the process of setting themselves up; and so, they were pleased to support them.

> Niraj, a part-time turker and start-up founder, said during an observational study: "I got at least 2 clients that way (from AMT) [..] we felt that they are like us (his start-up of 6 people) – just starting out, and so we are really happy to be a part of something cool." (part-translated from Hindi, part-transcribed)

Turkers had a high regard for all things American and were proud of working for an American company (AMT), with American clients (requesters), earning American money. Turkers participating in research studies felt that they were working with researchers from prestigious American institutions doing unique and interesting tasks, and that their input and opinions were valued, as this example illustrates.

> Gopal, a part-time turker, said in a phone interview: "There used to be a lot of tasks from Yale University on Indian constituencies, prime ministers, leaders, politics. I did a few of their tasks, they were very impressed with me." (transcribed)

Some turkers saw these tasks as a channel to do creative things, new things. Others enjoyed the thrill and challenge of completing tasks whilst on a timer,

for e.g. doing maths and memory tests required turkers to be quick and attentive, making them feel that they were exercising their minds and earning money at the same time.

Requesters for the most part were helpful and communicative, especially when a turker relayed a problem with their HIT or requested clarification on the job requirements, or made a mistake by rejecting a piece of work. Turkers felt satisfied when their work got accepted, appreciated it when they received feedback or bonus. One participant describes how he relished getting feedback from requesters.

> Javed, a part-time turker, said in a phone interview: "I like it when I get emails from requesters. I have saved emails of appreciation and bonus." (transcribed from Tamil)

Turkers also cherished communicating with other turkers, mentoring others or getting mentored – online or offline, which gave them a sense of a social status in the turking world. Luke shares his delight at having 'admirers', who want to know the secret of his success.

> Luke, a full-time turker, said during an in-person interview: "I have 99.8% approval rate. People approach me on the group and ask me how I achieved it." (transcribed)

Other than the work itself, turkers liked looking at their account page which had an overview of the number of HITs that got approved, rejected, account balance and so on.

4.2.2. Personal development

At a personal level, turkers found mentally stimulating and thought-provoking tasks to be their favourite. They felt they were learning something new and interesting, getting to know the world, and at the same time, earning money and getting entertained.

To learn something new

AMT was seen as a gateway to the world outside, allowing turkers to learn about other countries and cultures. It was especially popular as a window into the American way of life, since the tasks originated in the U.S., and were generally based on the American lifestyle, which added an element of novelty to turking, and kept turkers enthused about doing crowdwork.

> Mansoor, a full-time turker, during an observational study: "This requester Review Inc. makes me look up information on US, locations, restaurants etc. I know so much about US now." (translated from Hindi)

Turkers worked on many tasks: surveys, article-writing, and product review tasks that required them to read numerous articles that they would otherwise have no reason to read, to conduct research on a variety of subjects e.g., animals, politics and products in the American supermarkets. Turkers valued participating in such tasks, as they felt that they were learning something new about a different culture, country or subject other than what they deal with in everyday life at home or work.

> Nidhi, a part-time turker, during an observational study said: "I often feel the research I do before I write offers a lot of learning. I happen to know what happens in China [..] I happen to know that different breeds of dogs as different as different races, different human beings in the world and that really startled me [..] So apart from that now I know what different kind of products are available in the world which I never knew before because I wrote a review for products which I never knew existed by doing research.[..] All my colleagues they stop learning once they get a job, I don't want that to happen to me. I don't want to limit my learning to a particular career or a field – I just want to have a general knowledge of what's happening around me.. And what people are talking about across the globe." (transcribed)

Self-sufficiency

Turking was seen as a route to freedom and self-sufficiency, much like any other job, but turking came with the added flexibility of working from home and autonomy in work, hence, understanding what 'self-sufficiency' meant to workers is important. Turking freed part-time turkers from monetary dependence on their family for personal expenses and even allowed them to take up the responsibility of household expenses upon themselves, although

major expenses where still borne by the bread-winner of the family. Turking let graduate turkers 'stand on their feet', 'take responsibility', and support them while they were looking for conventional employment. It helped them plan for the future and earn a good name in the family, as a 'responsible person' and a 'sharer of familial obligations' as Pandiyan comments.

> Pandiyan, a part-time turker, said in a Webex interview: "My aim was to stand on my own feet. That's why I was searching for home-based jobs." (part-transcribed, part translated from Tamil)

In middle-class and low-income families, the complete expenses of young adults who are still studying or unemployed, are supported and taken care of by the parents. The expenses arising out of modern consumerist lifestyle which involves spending for instance, shoes, clothing, gadgets, going out for food or entertainment and so on, is deemed wasteful and not entertained. Having an income in such circumstances enabled turkers to maintain a lifestyle that is desirable among their friends and peers.

> Shiva, a part-time turker, said in a phone interview: "Parents don't give enough. So they are happy that I am not asking them for money anymore." (transcribed)

So was the case with housewives, retirees and other turkers whose circumstances demanded that they stay at home. Turking allowed them to be self-sufficient and not wait for allowances or pocket money handed out. Even though turkers were aware of the fact that the turk-money was governed by the amount of time and work they put in, and that the availability of work could span between wide-ranging high and lows, they were willing to trade-off the fluctuating, irregular nature of their salary for self-sufficiency.

Entertainment

Turking was seen as a channel for entertainment as well. Turkers enjoyed challenges and so they picked tasks such as testing mobile apps, multi-user games, research studies, surveys that they found interesting and challenging. The adjective 'interesting' was mostly used for tasks that they found

stimulating, thought-provoking, exciting and attractive in some way. Sumita gives an account of tasks she enjoys doing.

> Sumita, a stay-at-home mother from Gujarat, told us in a phone interview: "Some tasks are very enjoyable, some games are very interesting and fun– we have to solve the puzzles within a limited amount of time, unscramble words – that is also very interesting. Suppose 10 min is given to unscramble 20 words and the one who answers most words is going to get bonus." (transcribed)

Although turkers enjoyed working on tasks, it doesn't license requesters to pay them poor wages. Turkers did not want to be 'jobless' or be associated with the negative connotation of Timepass. They valued a well-paid job and requesters who appreciated the effort they put in and typically avoided working for low-paying requesters, as explained in section 5.6.

4.3. The platform and its pathways

Becoming a turker begins with discovering turking, which in turn, requires users to know that such a platform exists. This section provides details on the features that make it appropriate for the workers to find work on the platform – Amazon Mechanical Turk - that is the centre of this research. The chapter then describes the multiple channels through which the turkers learnt about the platform, whilst answering questions such as - what do they hear about it? How do they build trust with the platform and an unknown employer? How do they vet the platform and its legitimacy?

These pathways give us a flavour of the key concerns of the workers, as they begin to work in a new environment. It also describes some of the methods they use to learn about the platform and how it works. The pathways section also gives us the first view of the participants' turking-related social connections, essentially, the network of people who helped potential workers become turkers and provide support in running their turk 'careers'.

4.3.1. The platform - Amazon Mechanical Turk

Vakharia and Lease (2015) provide an overview of crowdsourcing platforms (other than AMT) and discuss their features and functionalities, with a call to look beyond AMT. In this section, we want to iterate that AMT attracts a unique cohort of users, as it satisfies some unique requirements. This section of the thesis explores such features of the platform AMT as viewed and discussed by crowdworkers. The key feature of AMT for workers was its accessibility. The platform is 'ready to use', as is. Although we have evidence that some turkers used external tools to optimize their work performance (sections 5.3.6 and 5.6.2), many turkers used the platform with its bare bones infrastructure. Becoming a turker comprised of turkers conducting some form of investigation or asking for help with learning about AMT and turking. These investigations and learning processes were generally based on turkers' own abilities, personal circumstances and the channels they received their information from. Turkers tried to gather information from different pathways and multiple resources before deciding that AMT was a good platform for them.

So, what made AMT a lucrative platform to turkers? What was the process by which turkers determined that AMT was "the" platform for work? The most notable of these features were:

'Free', no fee platform

Turkers were put off by platforms that required a registration fee to get access to. Such platforms were looked at with suspicion and even criticism. Turkers didn't find it logical to pay a registration fee for job site to get into a platform that is supposed to help them earn, or required them to hold money in an escrow system, a system they did not understand or trust, as one turker said,

> Javed, a part-time turker: "Why would I be here (on AMT) if I already have the money (to give)?" (transcribed from Tamil)

Paying a fee also made turkers question the authenticity of the platform, as they compared them with 'fake sites' they encountered during their search.

Turkers found that the jobs were reviewed quickly by the requesters on AMT; in some cases 'instantly' and in most cases within hours or a day or two. This provided quick gratification, turkers didn't have to (and didn't want to) wait too long before they got the result of the work they had submitted.

Authenticity and legitimacy

For people looking for 'work from home' jobs, there were plenty of sites that provided work such as data entry, online surveys, online referrals and reviews, posting ads online, verifying email addresses etc. Such online job sites were notoriously dodgy, infamous for swindling people out of their money while asking for tedious amounts of repetitive work. Turkers who had had such experiences wanted to be cautious, as most of these jobs didn't pay enough or at all. Some also required a percentage cut or monetary investments, i.e., participants only got access to the job site once they paid Rupees X to the job distributor as this example illustrates:

> Luke, a full-time turker: "99.99 % (websites) are fake.[..] I paid and lost .. I paid one (man / seller) shivaji nagar (a locality in Bangalore) ad-posting. I lost like 5000 Rupees. It's a slave labour. Fully. You have to post like 6000 websites they'll pay 5000 Rupees." (transcribed)

They were called "fake" as they promised unrealistic incomes, and people felt cheated out of their time, money and hard work. Since AMT was based online, it was eyed with suspicion and scepticism, and turkers had to find ways to generate trust in the platform.

One reason for this trust was the 'brand Amazon'. For turkers who had heard of it, they knew of its reputation and so the name served as an attraction. Also, Mechanical Turk was found to be a part of Amazon Web services, with Amazon's logo on it, which gave an assurance that it was a legitimate job site, as one turker exclaimed,

> Navin, a part-time turker rationalises: "It is Amazon! It has to be legitimate." (transcribed)

Another reason why AMT was deemed trustworthy was due to its requirement that workers registered their accounts by providing personal identification

documents such as a passport or driver's license, which were internationally recognized and verifiable, allaying the fears of some workers of being swindled.

> Niraj, a part-time turker shares his rationale: "It must be legal because they are asking for passport and IDs." (translated from Hindi)

Furthermore, AMT was an American product which added to its charm. Turkers had a high regard for American products and jobs in general.

> Luke, a full-time turker, said in an in-person interview: "its (AMT) from US. Once you get here you'll know you are up-to-date (you are making progress in life if you are on AMT, and know the things that matter). US people are approving our work. So I am very happy with that. [..] What I can say. Its inspiring to me." (transcribed)

An interesting point here is that while AMT and microwork has received bad press in the west, especially in the US, comparatively, it has a better reputation in places like India. One reason could be that turking required working on a computer, which was lauded and seen as a white-collar job in many families. The other being, the money's earning power was higher in India.

Building trust

The simplest method to confirm the genuineness of AMT was confirmation of payment, when turkers received their first cheque. Cheques were an order of payment to get money from a bank, which confirmed that it was real money.

> Niraj, a part-time turker, said in a phone interview: "In my first year, I was not sure, the first cheque made me sure about this." (transcribed)

Endorsement of AMT by friends was also regarded highly, which was typically backed by showing a cheque issued by AMT or the display of an introducer's account summary page which had details of recent and past earnings. Receiving the first cheque in hand served as a validation test to check the authenticity of the platform. Generally, most turkers began turking with a contingency plan - to leave the platform with nominal loss if something went wrong, until the confirmation of AMT's genuineness took place.

> Barun, a part-time turker, said in a phone interview: "First, initially, I used to work very less, I don't know how genuine the site is." (transcribed)

Lack of specific work hours and clear commitment to a requester allowed turkers to do just this, test the waters at nominal costs. Unfortunately, it also made them vulnerable to unfair rejection of work and poorly paid jobs.

Flexibility of 'work from home'

Turking stood alongside home-based jobs or freelance work for some turkers. The work could be done from the comfort of home, allowing them to prioritize work as they liked and as their personal circumstances allowed. In theory, all turking required was a computing device: a personal computer, laptop or phone, and an internet connection, allowing one to easily work from anywhere.

Turking supported the change in turkers' life circumstances. For instance, for women who quit their jobs after marriage to run the household and take care of young children, who although wanted to return to work, didn't want to renounce their household duties or leave the kids in external care, AMT afforded them to get 'back to work' even after a gap of a few years, without having to work hard to look for work or leave their homes. College students could go to college during the day and turk in the evening, allowing them the opportunity to study and earn, support themselves without needing to do much hard-work, or ask for assistance from the family. It allowed turkers to take up bursts of work without any contractual obligations or commitment to a task or requester. They were free from obligations of working a set number of hours or completing specific lot of work every day. By avoiding commute to work, turkers also saved on travel time and fuel expenses as this quote illustrates,

> Salman, a part-time turker said in an in-person interview: "before I picked this job (AMT) up. I was working at Jeevika Mall, Banjara Estate, I was working in Reebok as a salesman. My brother said this is taking a lot of effort, it was 12 – 14 km one way, coming and going." (translated from Hindi)

It helped turkers avoid the physical effort and mental stress related to commuting on Indian city roads.

'Instantaneous' and uncomplicated nature of work

This was seen as an important criterion for turkers when searching for work. Turkers found it useful that the tasks could be completed in a short time, so they could get going, finish one task quickly and move on to the next or concentrate on something non-AMT.

AMT was preferred as a platform also because of the instantaneous nature of job acquisition. Quite a few turkers had tried different platforms or different types of online work without much pleasure or monetary gain and hence, turned to or stuck with AMT. It required a turker to only click on an 'accept' button to actually get the work (if they were qualified to do it) whereas on other platforms people had to go through an extensive process of bidding (Odesk and Elance, now Upwork), create and develop a project portfolio (Freelancer.com) or give tests (clickworker) just to get a shot at the job, which could take between a few weeks to a few months, with no certainty that the they would actually get the job. Turkers found them to be complicated and hard work. They lacked the simplicity AMT offered and didn't offer 'guaranteed money', where turkers could log in, pick a task from the job pool, complete it, get paid and move on to the next one.

Choosing work online was based on 1) turkers' knowledge and skills' expertise in a particular area 2) pricing of tasks 3) competition with other people. Turkers worked on jobs they believed they were good in. Some required basic skills like looking for missing information on the internet, using a mouse and keyboard skilfully to annotate images, or apply simple mathematics to knowledge based or problem solving tasks. Some required expert skill or technical knowledge like writing a php code or knowing to read and write Spanish. This meant that many turkers had low confidence in their ability to win a job through the bidding or portfolio model as the jobs required a higher level of skill or knowledge. Aman describes why he is sticking to AMT, he (mis-) uses the word 'interesting' here, but implies that other platforms are competitive and as a result he loses interest when he has to work hard.

> Aman, a part-time turker, said in a skype interview: "I have tried on different platforms like Odesk, Elance, clickworks, crowdflower. But that are not much interesting because they need a experience.. like your knowledge." (transcribed)

Turkers could choose from a variety of low-skilled jobs on AMT, and could quite easily work on jobs that didn't require following complicated procedure to make decent money, and so, when other platforms required them to take tests, it was seen as uninviting and workers were not sure if they would be able to land a project. Moreover in other platforms such as Freelancer.com the project went to the 'best fit' worker, which was generally the lowest bidder. They were also intimidated by the open bidding system as they could see that who, and how many, they were competing against, and see their bids or offers; whereas on AMT, this feature was opaque – i.e., they couldn't see the profiles or the number of people trying to get the same task, which made AMT more lucrative for turkers. Aman goes on further, this time about difficulty of winning a project.

> Aman, a part-time turker: "We have to raise a bid for a project, less bid as compared to 1000 or 1,00,000 people. So you are the one that the requester has to select between from the 1000 people, so it's really difficult." (transcribed)

The competition on price and skill and the uncertainty of being able to get work made turkers hesitant in participating in such processes of finding work. In comparison, the bar was low in AMT and finding work wasn't as complicated as it seemed in other platforms.

Turkers found that AMT had an easy and comprehensible interface. The tasks on AMT were found to be well-defined and specific in their requirement, which was very appealing to turkers, as many had a working knowledge of English and could understand simple sentences but not complex ones or instructions with a high standard of English, which turkers found hard to grasp. Interestingly, hardly a handful of turkers compared the pricing between these platforms, as they felt the process of obtaining a job prohibited them from pursuing the platforms any further.

'Not enough work' or 'too much' elsewhere

As explained in the previous section, some turkers had tried other platforms and found that finding a project was a tedious process and hard work; on other platforms, there was an excessive amount of work to be done that put off workers from pursuing or returning to them, as they were offered a trifling in return, as this quote illustrates:

> Vishnu, a part-time turker, said in a phone interview: "In Freelancer, you have to pass an exam, there are qualifications you have to earn. In terms of payment to get one project it will take about 1 month. [..] I have looked for and tried data entry jobs at home. I also have an account on MegaTypers.com where you have to type up captchas. You get $1 for every 1000 images." (translated from Tamil)

Turkers witnessed 'dry spells' too, when the tasks they like do not show up in the job pool for a few days or weeks, thus forcing them to look for work on a different platform like Kamal, who is a regular turkers but has accounts on multiple platforms to get hold of work, for when he doesn't find it on AMT.

> Kamal, a full-time turker, said in a phone interview: "There is not enough work on these (Odesk, clickworker etc.). I have the details of the accounts with me for emergency.. as a backup for dry seasons." (translated from Tamil)

AMT seemed to strike the right balance; the work there was neither too much nor too little. Neither scenario was optimal for people looking to get immediate work and pay-out. Hence, turkers in situations similar to Kamal and Vishnu stuck to AMT, putting the other platforms aside, unless they were forced to look elsewhere due to dearth of work on AMT or account suspension.

Availability of training and help

Training and guidance were important for turkers new to turking, those not confident with their language comprehension, digital or technical skills. The easy availability of friends, guides, or trainers at hand, made AMT an attractive place to work for turkers. Such turkers needed help with the procedural and operational tasks on AMT initially, till they developed confidence in doing it themselves. These tasks included creating and registering a new account,

searching for tasks, understanding the qualifications and scoring system, ways to optimize performance and find colleagues with turking experience. Some turkers were confident and happy to find their own information, worked independently, while some wanted help, expected 'spoon-feeding[26]', with their initial learning phase which wasn't supported by the design of AMT (no direct synchronous communication was possible between requesters and turkers) and requesters used AMT to find workers who could work independently without needing supervision. Many turkers with low digital literacy called their first experience with AMT as 'overwhelming' – as they found it was all too much to take in for them and so looked for help; and found it through different pathways either for free or for a fee (more details in the next section).

Turkers based in the same physical locality, college, friends circle or members of the same Facebook group were seen to form a support network for each other. This network consisted of people they knew and trusted for when they ran into issues, didn't understand a task or faced an unfair rejection and so on.

Easy access to technology infrastructure

Turking took place online, which allowed turkers to work from any location they wanted to, the primary location generally being home. Turkers could log onto their accounts from multiple devices. Turkers used mobile phones, laptops or computers to turk, some turkers had ready access to these devices at home and at school or work, some had acquired them from relatives or bought them second hand or were provided with laptops by their universities or companies. Turkers who were well off and of more sound financial background were more likely to have a computer at home. Turkers met with the internet requirements as their circumstances afforded. They used 2G, 3G or broadband services for turking, which also dictated the type of tasks they could do (explained in detail in chapter five).

[26] A vernacular term commonly used in India to suggest 'helping' someone too much (more than necessary), that they suspend self-thought or self-effort.

4.3.2. Pathways

The flexibility turking offered is comparable to any freelance job that could be done from home. But due to the low-skill requirements, low-key infrastructure demands, and easier access to this unique platform, it was AMT that proved to be an invaluable source for work and money for turkers and not any other platform. Now, how did they find AMT? What led potential workers to the platform and crowdwork? Turkers might have heard of AMT from a friend who made some money on it, or seen a screenshot of an AMT account page online, or seen the picture of a cheque on a Facebook group or online forum where turkers boasted about their earnings or stumbled upon a newspaper advertisement about working from home. Turkers started working on AMT out of curiosity, to see: 'What is this thing?' 'Is this for real?'. This finding of the platform is a key feature of 'becoming a turker' and this section describes how people were introduced to AMT and the different pathways that led people to turking.

DIY Online investigation

Some people found AMT by typing a search query in a search engine. They searched for "work from home" or "home-based work" or "online jobs" online, which also highlights their motive in looking from work, as well as, the type of work. They then went through the search results and found AMT as one of them. Next, turkers went on to the AMT website and created an account by giving their personal details and within 48 hours their account got verified, and the registration was complete.

Next step was to vet AMT and learn about how it worked, which required an investigation, consisting of an intensive period of research, which led turkers to news and magazine articles, blogs, online forums, YouTube videos and so on. Turkers looked for any information about turking when they started on AMT, to learn about tasks, requesters, qualifications, scoring system, earnings potential, ways to optimize performance and turking experiences of 'others'.

While searching online, turkers also found websites that promised jobs or payments for completing surveys, data entry tasks, review-writing and article-writing. Some participants clicked through, tried and tested the websites, while others just browsed the websites and judged the legitimacy by the look and feel of the website. Turkers had to weed out results that were not good, too good to be real and were 'fake websites' (cf. section 4.3.1). Workers searched on 'Google' or other search engines regarding any information about the platform Amazon Mechanical Turk and found reviews and user comments on sites like TechCrunch, Sitejabber and Trustpilot. Along with AMT, most turkers also found other crowdsourcing platforms like Upwork (Odesk and Elance now merged), Clickworker, Freelancer, and tried them out too, but very few Turkers worked on the other platforms regularly as explained in the previous section.

Through word of mouth

A majority of our participants were informed about AMT and its potential by people they knew or had met at some point in their life - friends, colleagues, family, relatives. In most of these instances, the introducer had tried turking themselves and then referred it to their friends. This route to turking meant that guidance and mentoring from people they knew could trust and reach anytime was included, usually, for free. There are two types of references here – real, offline friends and virtual, online friends. Both are described below.

Real friends

For those who received referrals from friends, information was easy to trust and taken for granted, as it was from a local or well-known source. These friends were offline, 'in real life' friends or family members of turkers. Real friends reportedly included friends, work colleagues, college or school mates, neighbours, friends of the family and relatives or family members. When friends and family introduced new members to a platform, they not only did the introductions and priming, but also guided the new members with the

initial set up e.g. in creating and registering new accounts, searching for tasks and requesters and, dos and don'ts, as happened with Pandiyan:

> Pandiyan, a part-time turker, said in a Webex interview: "Mr. Ram from our area told me about mturk and showed me a cheque from mturk in May 2012. So I joined mturk and sought help from him in learning about how mturk worked, then I introduced my friends and classmates to mturk. I was in college 3rd year then." (translated from Tamil)

Referrals came both solicited and unsolicited; unsolicited referrals were mostly ignored or put aside for later, as turkers' then circumstances might not have given them the time or need to turk. In some cases, friends and family members had created accounts on behalf of the turkers, so they could have the account ready, when they decided to use it. Ratish's vignette also shows the language the introducers used in their introduction. Again, this was tailored and based on the situation of the turker, when the introduction was made. Ratish recounts his encounter with AMT here.

> Ratish, a part-time turker, said in a skype interview: "It's very funny thing. I am not familiar with the registration of Mechanical Turk previously. One of my friends, who was working with me in Sutherland resigned the job and joined some consultancy in Cochin. She told me that – 'there is a site which will help to earn a side-income with your job. you just give me your email address, I'll do all the registration for you and she did the complete registration for me. [..] That happened in 2009. I logged in to this site, first 2 days I worked hard and earned around $3 and I quit it. I thought you know, because it was taking a long time and that time I had job, I never spent much time in it. So after that I never spent much time in it. After 2011, when I quit the job and I was studying, one of my friends told me – he was earning money from the site – and that is mechanical turk – I never remind that I had an account with this. That time I told (asked) which site? And I was curious about it. I went to register again and they said you are an existing user. Ok, I retrieved my password and I logged in then I saw that I have earned $3 in this. Then I started working regularly." (transcribed)

Ratish was employed when the introduction was first made, hence AMT was introduced as a platform for a side-income but he never used the account actively then, whereas, the second time when he was between jobs, it was introduced simply as a site to make money. His need to find work became stronger when he was out of a regular job.

When the reference was solicited, turkers readily pursued it, and checked AMT out. Aspiring turkers tried to get AMT accounts by asking their turker-friends

to ‘get’ an account for them. Simply put, they used *turkers as a pathway*. This was a common occurrence as reported by turkers. Accounts had become more valuable, and were rather in demand since AMT stopped issuing new accounts to international workers from summer 2012. Turkers even stopped discussing about AMT with their non-AMT friends, as they didn’t want to spoil their reputation or let their friends down by giving them false hopes of getting access to AMT.

Turkers felt responsible for passing on good, reliable information about AMT, and disliked not being to help their friends. But generally, turkers had to provide ‘bad news’ to their friends as they couldn’t help them in getting new accounts, which disappointed them too. Sometimes accounts that were not in use were gifted to friends or family members, so they could make use of an idle account and keep it going, consequently, raking up the account’s scores and make some money as well.

> Gopal, a part-time turker, said in a phone interview: “Currently I have no time to turk [..] I am planning to quit and maybe give the account to my friends who are free.” (transcribed)

Facebook friends

A few introductions were also made by people online, between virtual friends who are, for example, members of a Facebook group or online forum i.e. who have never met each other in real life, turkers called them ‘Facebook friends’. One turker was a member of a Facebook group for online jobs; another had posted a self-advertisement on his profile asking to be contacted for any online jobs, when a seller contacted him. In either of the cases, the channel of communication between the turker and the introducer was Facebook; and since they were not real friends, they had not kept in touch after the information was exchanged. Even when the introduction was via Facebook, the participants received some form of guidance initially, on how to start on AMT, find work, find requesters, make money, before the turker became independent and parted ways.

Through a seller

A few turkers had bought the information about AMT from the sellers they found online or through newspaper adverts. These sellers 1) Either sold AMT training material in the form of books and CDs 2) Or promised first-hand training provided by experts in a training centre or agency. Alternatively, they simply disclosed the name of the money-making platform for a fee, and then helped turkers create an account and look for work. Turkers who bought physical material, such as books or CDs, did so as a one-off purchase. They learnt turking, then, passed them on to friends who might be interested. None of the above was a continuous open channel for guidance or communication, as in, the turkers seldom remained in contact with the sellers after they became competent at turking or found online forums and groups for help.

Turkers who procured information or training material about AMT, had found advertisements titled 'Easy way to make money', in their local, regional newspapers in the local language. The advertisements were usually vague and placed in the classifieds or job ads section, alongside other ads for data-entry and work-from-home jobs. The ads almost always had no details except a phone number, designed to raise the curiosity and intrigue of readers looking for home-based jobs.

Sellers worked individually or as an agency, and generally sold just the 'information about AMT', i.e., the name of the website, or account registration support, or just the training materials (Contents involving instructions on searching for tasks, requesters, getting paid etc.). Bharat was able to register his own account and avoid paying a seller, he recalls.

> Bharat, a full-time turker, said in a phone interview: "Some agency is there, here. Me and my friend went to that agency. There they told that an online job is there. If you want to work in that then you have to register with us, you have to pay us money – 5000 Rupees. I asked him what type of job is that ? and they opened MTurk and I noted the website address and came to my office and entered mturk.com and registered. [..] They showed that .. this is the website and they told that 'we will train you on how to work on these HITs'. (When I opened AMT) The full instructions are very clear on MTurk. So I started working on this." (transcribed)

The sellers generally also provided training and information about turking, or at least offered advice, which was sold as a package. Nonetheless, the information from the sellers needed to be verified as they were coming from unknown, untrusted sources. Some turkers felt embarrassed to have been tricked by a seller to learn about a platform that was freely available, while some felt lucky to have received this information with just a tiny investment; either way they felt they took a risk that paid off and the returns to be much bigger than the investment.

Personal coaching

Apart from people selling information or guidance material on AMT that turkers bought, a few turkers themselves provided coaching or were planning to do so for other turkers. The coaching included a useful selection of topics to be covered - tips on task selection, tips on working more efficiently, increasing earnings, choosing the right requester, how to contact AMT customer service when required or help in understanding task instructions. The coaching was highly personalized and on-demand when compared to the guidance and passive sales of turk-related material.

When some of the senior turkers had started turking they didn't have any form of support. Gradually, the online community around turking had grown manifold and so senior turkers often found new novice turkers asking for advice. Experienced turkers made a living by doing large Batch HITs (of hundreds and thousands of HITs) that followed the same instructions, had a similar flow and structure, but with different data and used multiple tools to help them speed up the work process, versus novice turkers who searched for high-paying individual HITs to find work that was interesting and high-paying, ending up spending a lot of time 'searching' than turking or making money. Senior turkers loved mentoring the juniors, felt that they were nurturing and developing talent. Some even took initiatives to find Indian-sounding names on forums, contacted them to advise them.

Although most senior turkers provided free advice, a few had decided to monetize their experience; for the fixed fee or a percentage of the novice's earnings, as in Rafiq's instance,

> Rafiq, a full-time turker, said in a skype interview: "I am giving training to 11 members in my Skype. Frankly, I just get some percentage payment from them [..] like 10% - 20% of their earning amounts. Suppose 20,000 Rupees they have earned in a month, they give about 2000 Rupees of that. It's a monthly kind of thing. I have fixed a date. They put a cheque. [..] Some people they told that they are poor people, they have a lot of scope of doing work.. I do them for free,.. later on in the relation I didn't push them, ask them hardly to give the amount, but they give after they are successful. If they are heartful (grateful) they will give to me the amount. This is the extra payment I will get. So that's why I make this training." (transcribed)

The training was carried out one-to-one or in groups, through an open channel of communication, with an exchange of detailed tutorials and reference materials that helped new turkers develop their competencies in finding work, understanding instructions and task requirements, as well as, offered hands-on troubleshooting of any kind. This training meant that turkers didn't spend too much time alone in their initial learning phase. They enrolled in and paid for such training until they felt confident enough to look for jobs on their own. This 'side-business' for turk-trainers happened at their own risk, as there were no formal contracts between the parties involved and were most often oral contracts with the terms implied.

Some of this personal coaching and transactions were based on word of mouth and mutual trust and benefits, such as in the two examples below. (1) A group of friends in Mumbai who were working together in a new start-up also turked together during their free time, and were coached by the senior-most turker.

> Niraj, a part-time turker, said in a phone interview: "I started this company [..] I get some work from my old company.. Some I got from AMT. [..] I have 6 people working under me, who I am training." (transcribed)

Most of this work was off-AMT or on the requesters own interface. Niraj reviewed it if it involved writing, but not if these were simpler tasks like image-based and database updating tasks. When he wasn't training, managing people, or looking for new business, he would log on to AMT and work on some HITs, like a regular turker. AMT helped him set up a secondary business

by providing clients that his start-up could sustain; and the team was very emotional about it.

(2) In case of Nagen, an entrepreneur in his 50's who ran an internet café-cum-DTP (desktop publishing) shop in a small town near Kanyakumari, he had a Civil Engineering diploma with little English proficiency. His internet café was something of a crowdsourcing hub, where 5-6 people worked on AMT when the computers were available or the café owner required help. When Nagen started a new task, one of his digitally-proficient customers, or local turker-friend or even his teenage son would help him learn how to do it. The types of tasks he did included link-checking, simple digitisation and video transcription. They would translate and explain the instructions, then help him practice until he was confident enough to do the task on his own. If a task was especially problematic task, they would simply do it for him, like video transcription, as it required a high degree of English language proficiency. There was no monetary transaction involved, as it was a small, social group that supported each other, but the turkers traded favours with each other e.g. teach Nagen or do a task for him in return for free use of his café's Wi-Fi. Whether social or private, the above pathways led to an AMT account. The next section describes the process turkers underwent to acquire an account.

4.4. Registering an account

As described in the Pathways section, some turkers found out about turking by themselves or from a friend, others had heard of AMT through a seller or an agency. Turkers who were experts in navigating through the digital realm didn't need any help in creating an account, but for people with limited experience of the digital world, generally belonging to groups of lower socio-economic status, with little exposure to digital medium and technology, account creation wasn't simple. Some turkers even stated feeling overwhelmed, during their first encounters with AMT and so looked for people

who have had the experience of working on the platform to help them navigate it. Luke describes his experience.

> Luke, a full-time turker, said in an in-person interview: "I was afraid (when) I started work. [..] When I first started, it was totally confusing. What do we have to do. I don't know whether we have to click here, and we have to read instructions. That time I didn't know how to read instructions. Instructions were so confusing. Even if you spend 1 hour.. its rejected then it's useless. So I was totally confused." (transcribed)

The process of registering for an account broadly required turkers to fill a form with personal details, accept the terms and conditions of AMT, provide personal documents for verification, set up the payment system and finally, start turking. Turkers who participated in this research had created their accounts between 2008 and 2012; while most of them had created their accounts in 2011, quite a few did in 2012 as well, after which AMT stopped issuing accounts to international workers. Some turkers were using dormant accounts, i.e., the accounts were created between 2009 and 2011 that were either forgotten about or weren't needed until a later time.

Account creation

In the process of opening an account, firstly, turkers filled a form with personal details viz. name, address, phone number; they immediately received an email confirming their registration. The turkers were then requested to send copies of their personal ID documents issued by the Government of India, such as the Indian tax card PAN (Permanent Account Number) card, Passport or Elector's Photo Identity Card (EPIC); following which their account went through a verification process. The details of this verification procedure were not available and took between 2 days to a few weeks. Subject to verification of these documents, AMT confirmed registration of a turker's account.

Account quandaries

In 2014, AMT went on an accounts crackdown spree, when it suspended many AMT accounts (as reported through personal communication, post-fieldwork,

by turkers who got their AMT accounts suspended, and discussions found on online forums). Turkers did their own research and discussed the issue amongst them and decided that it was because their accounts showed access from different IP addresses, or due to change of personal details (addresses) which didn't match the initial ID documents submitted – like in cases where accounts were bought from sellers. Turkers were generally not given any concrete reasons for the suspensions to confirm or disprove their reasoning except for 'violation of participation agreement'.

To create a registered AMT account, Turkers had to be above the age of 18 to work on AMT. During the study, some turkers reported having started turking when they were younger, and not 18 years old, and had to use someone else's credentials to create the account.

> Salman, a part-time turker said in an in-person interview: "When I started, I had completed intermediate first year (aged 16–17 yrs. old) [..] When we created accounts, we created them for my brother, and my father." (translated from Hindi)

Quite a few turkers didn't have any personal ID documents at the time they started turking as they wouldn't have required them personally e.g., student going to college in a college bus hardly needed any form of ID except a student ID. So again, turkers had to use borrowed identities from their friends or family. Once they were of age and had the required ID documents, they either changed the account information to their names or continued turking with borrowed credentials, generally in the name of an elder family member or close relative. This was cause for anxiety for turkers who were sceptical about the outcomes of this exercise, since the change of registration details took time and could complicate matters. Turkers had heard of stories of accounts being suspended or having to wait for very long for the process to get completed holding up their payments. Hearing the bad experiences of their friends, turkers generally decided to continue on with the borrowed credentials. This method was convenient, but not entirely hassle-free as turkers had to plan and prepare, and mobilize their networks for payments processing. Fig. 6 is a snapshot of a turker forum, where a turker had shared the email they had received from AMT explaining the turker's account suspension. One of the participants of our research had saved this snapshot to share it with their friends.

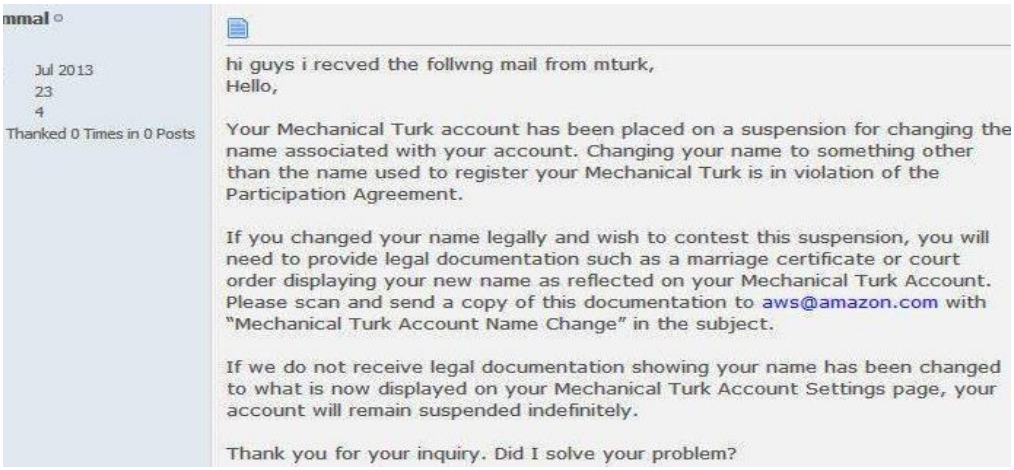


Figure 6: Account suspension email[27] due to name change

The case with email addresses and AMT accounts was such that turkers shared usernames and passwords with their friends and families, in some cases, had one email account for the entire family. During a field visit one eager turker logged into the email of his friend to show an interesting an email he had received from AMT and a requester. For a number of purposes such as to understand a new task, instruction or account situation, turkers logged into their turk friends' accounts to see what was going on. It was much more practical rather than sending each other screenshots for every single problem. It is possible that this practice of sharing led to the suspension of many AMT accounts due to logs showing access from multiple IPs.

> Luke, a full-time turker, said in an in-person interview: "For US people, privacy is very important. Even when I was working at my previous company.. even husband and wife.. Husband should not know wife's details. It was so private. That time I came to know about maximum (a lot) (about) privacy. For me it's no problem. It's for them." (transcribed)

In a collectivist social culture, with little concept of individual privacy, or discretionary individualistic living and working environments, turkers had not fathomed that any of these practices could be deemed questionable or inappropriate, let alone illegal, till they got penalized for it – by losing access to their accounts. Luke's instance, explains this concept by differentiating 'us'

[27] Source: http://mturkforum.com/showthread.php?7421-Mturk-suspended-my-account-today!/page5

and ‘them’ – ‘them’ being the Americans that he had learnt about through work, thus applicable to those he was working for on AMT.

4.5. Summary

The key takeaways of this chapter include insights into workers’ motives and features of the platform, as well as the process of creation of an AMT account and the sociality of it, as described below:

- Crowdwork was driven by heterogeneous motives, primarily, a ‘job’ (work), to earn money, and for timepass. Workers further developed multiple reasons to continue doing crowdwork after their commencement, to ‘get something out of it’ for personal or professional purposes. For workers this heterogeneity did not undermine the value of crowdwork in earning a primary or supplementary income, which was primarily (other than ‘being employed’) why they did crowdwork.

- Crowdwork had a moral element attached to it for workers in India, especially those from lower socio-economic backgrounds. The motive of being productive while doing ‘timepass’, hence came with an expectation of using one’s spare time ‘productively’, for a respectable and virtuous cause, such as earning money for the family, helping a researcher or learning new skills.

- The features that made a crowdsourcing platform attractive for crowdwork were:

    i) Accessibility in finding and learning about the platform

    ii) Technical ease of use – in finding, operating on the platform and executing jobs

    iii) Availability of work supported by local infrastructure

iv) Flexibility in the nature of work, i.e., work that in principle could be carried out from anywhere, at any time.

- In getting introduced to the platform, creating an account, and proving a platform's legitimacy and worth, workers predominantly followed two paths – (1) trial and error by online investigation and (2) word of mouth via social references online and offline, and via - information sellers and coaches. All of which point to the fact that crowdwork was a collaborative endeavour and could not function in isolation.

Following the discussions on motives of turkers, unique features of the platform, platform discovery and account registration, the next chapter describes the work that got done on the platform, the planning and set ups turkers undertook, the processes followed by them for finding and doing work, as well as, getting paid.

5. Doing the work

5.1. Chapter Overview

This chapter describes the sequential order of work that goes into accomplishingthe 'work' of turking: for instance, 'looking for' work, planning and making calculations, as observed and reported by the turkers, taking inspiration from Suchman's planning for work (Suchman, 1987) and Becker's (1963) accounts of sequence of use. To provide a rich description of the work of doing crowdwork, this chapter relies upon what Garfinkel calls the documentary method of interpretation (Garfinkel, 1967). This documentary method shows the reasoning processes and logics applied by the members doing crowdwork to identify features in crowdsourcing that might form underlying organizational patterns or topics, which in turn, help them understand the phenomenon of crowdsourcing. Such a description is a result of the reflexive accounts of members actions implying:

> These accounting practices are reflexive because the accounts which members provide are displayed in member's actions. It is through their own actions that members display how they understand their own actions as well as the actions of their interactional partner. Hence.. relates to self-explicating, self-organizing character of members' actions". (Czyzewski 1994, p. 163)

Such account-ing helps build a picture of the social structures that the crowdworkers see themselves to be a part of, but do not explicitly discuss as they seem to be common, taken-for-granted understandings amongst members of the crowd community.

The chapter begins by describing how turkers find 'suitable' work wherein lie the details of how work is occasioned using triggers or daily routine, as well as, the characteristics turkers looked for in a job[28], that help them in making the decision whether to take up a task or not. The next section describes how turkers planned and prepared for the job and took steps such as making sense of the job market, acquiring qualifications, installing scripts and setting up the workspace, to be ready for the when the job became available to work on.

[28] In this chapter, 'job' and 'task' have been used interchangeably, as they describe a HIT – a Human Intelligence Task on AMT, which is in mundane terms a job to be completed.

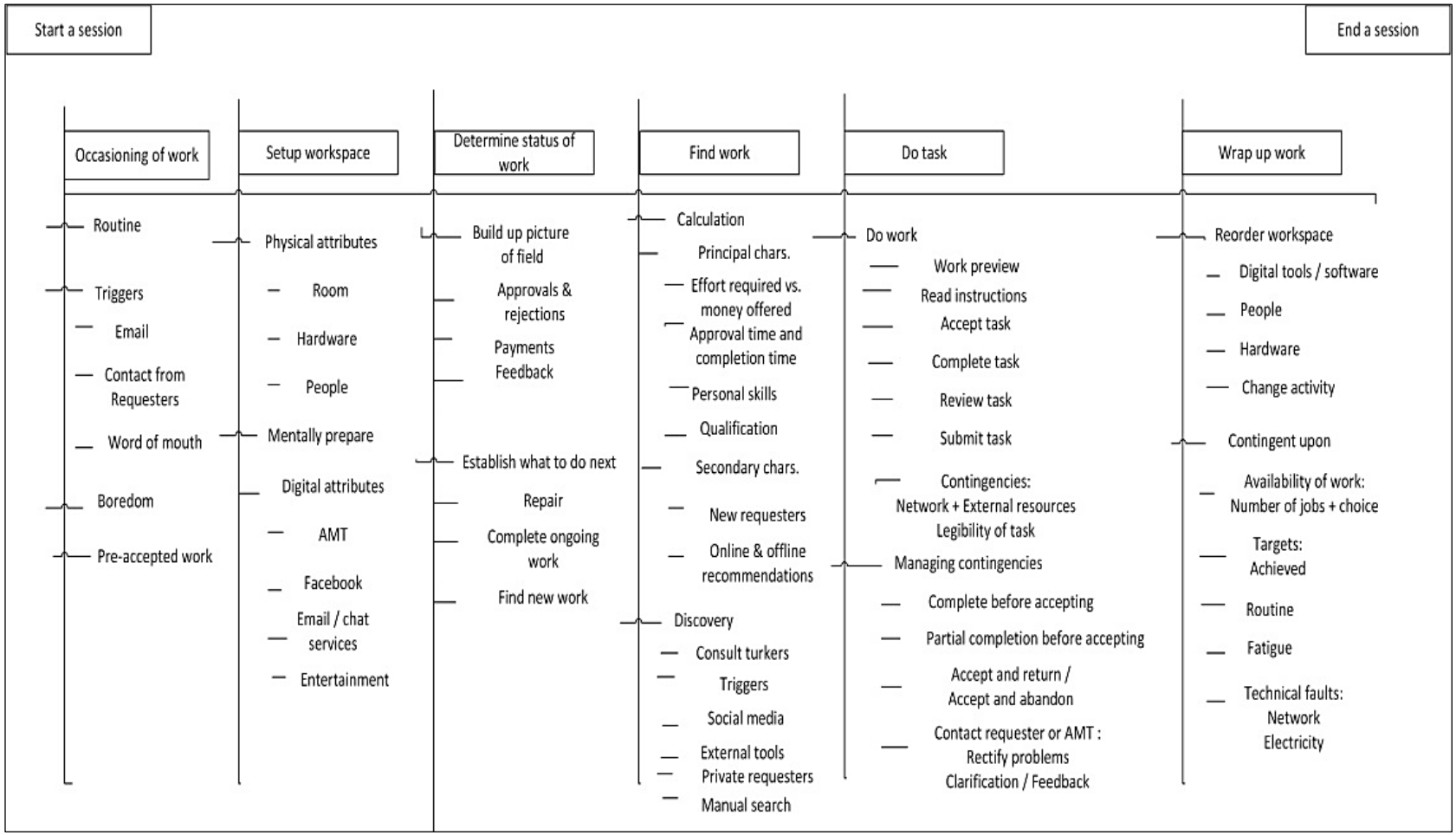
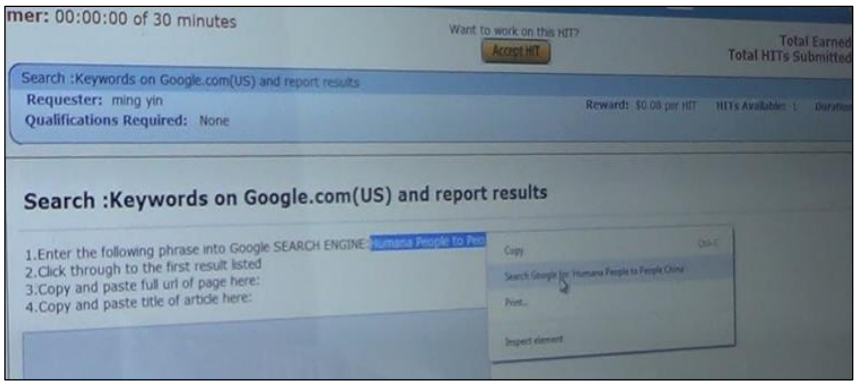
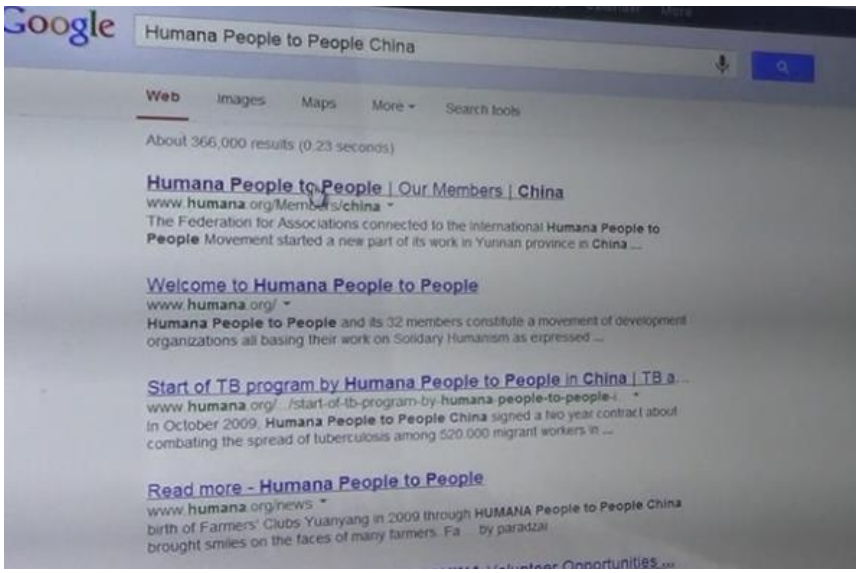


Figure 7: Workflow of turking

The chapter then describes the workflow of this work, the order followed by the turkers for the execution of a task and the contingencies that needed to be managed for the work's successful accomplishment. The chapter then proceeds to describe what happens after a typical work session came to an end and how they 'wrap up' their work, leading to the final stage of turking: payments; one of the key elements that drives turking, which follows a process of its own.

The chapter begins by providing an example of one of the 'microtasks' that the crowdworkers undertake: a 'Google search' task, where workers are required to search for results on Google and enter them in a form on AMT. Given below is the step-by-step procedure followed by Elango, a part-time turker from a small coastal village in South India, during an observation study. See section 5.6 and 5.7 for further details on some of the intermittent stages of doing the work.





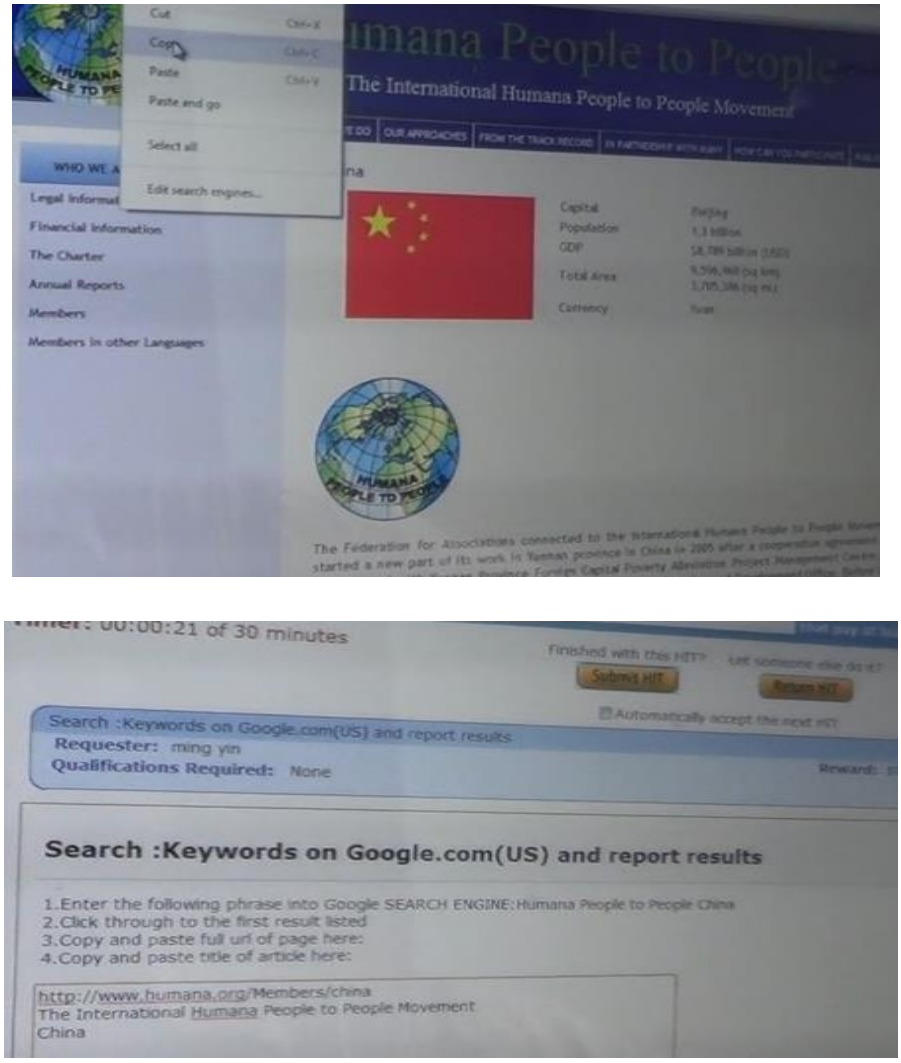


Figure 8: Screenshots at various stages of working on 'Google search' task

1. Search keyword 'Google' on AMT ->
2. Choose task from results on the dashboard ->
3. Preview task & scan through instructions ->
4. Accept task ->
5. Complete the task ->
   5.1. Select the phrase to be searched from the HIT, right click, select option 'Search Google for Humana People to People China'.
   5.2. Go to tab with Google, paste it in search bar, wait for results to load.
   5.3. Come back to HIT, check instructions. Highlights generally (reads aloud - for researcher's benefit and his) "click on the first result".
   5.4. Right-Click the first result (Humana website) and open it as a new tab.
   5.5. Go back to HIT, check instructions.

5.6. Go to Humana tab, wait for page to load completely (graphics take time to load).

5.7. Come back to HIT, check instructions. Highlights generally (reads aloud) "Copy and paste the title of article".

5.8. Go to Humana tab, select, right-click copy URL.

5.9. Come back to HIT, right-click, paste the URL in the response field in the HIT.

5.10. Go to Humana tab, select the tagline after the Title, right-click copy it.

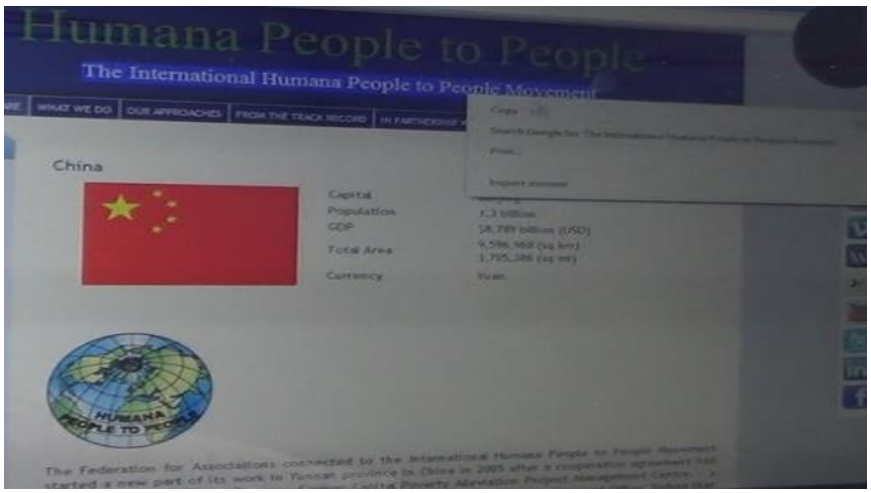


Figure 9: Copying tagline instead of 'title' as instructed in 'Google search' task

5.11. Come back to HIT, right-click, paste the copied tagline

3.11. Go to Humana tab, select the word 'China', right-click copy the word (as an added extra for the requester)

3.12. Come back to HIT, right-click, paste the word as part of the response underneath the previously pasted responses in the space provided.

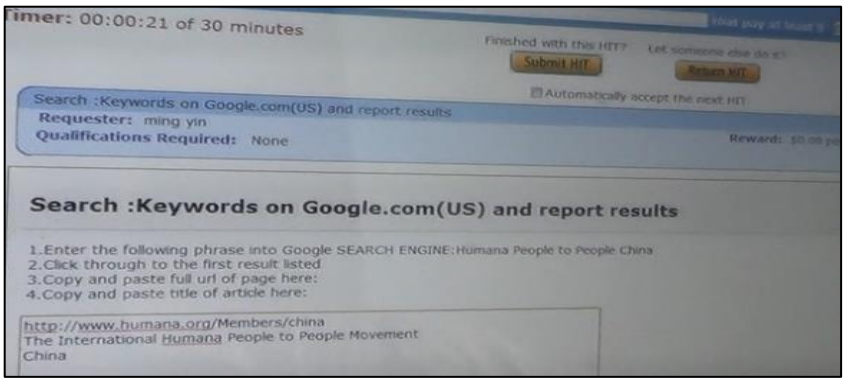


Figure 10: Responses filled in the response field with the added extra 'China'

6. Quick review of the response entered (see section 5.7.1.5) ->
7. Satisfied, submit response (see section 5.7.1.6) ->
8. Move on to next task (see section 5.6).

Each of these steps is explained in detail in the sections to come. The chapter describes how work is articulated, and how turkers make work accountable to the requesters and to one another. It also describes the sequential order of finding and accomplishing work, and shows how work rides on factors such as skills, knowledge and availability of infrastructure to turkers, which differ on an individual basis.

5.2. Occasioning of work

In understanding how the work of turking is carried out, it is essential to first look at how it is induced or occasioned. It had become a part of turkers' everyday customary practice; sometimes it was initiated by triggers such as an email or a phone call or it was a roll-over of a job in progress. These various approaches are examined below.

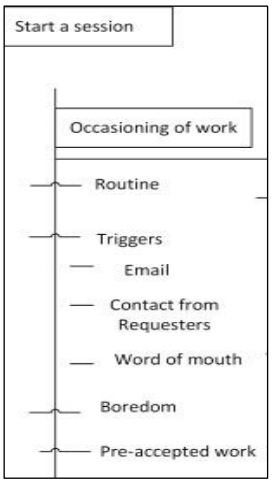


Figure 11: Occasioning of work: attributes

5.2.1. Routine

For some turkers, turking had become a daily routine. They logged onto AMT every day at approximately the same time to 'see what's happening' on there. This was a habit that had gradually formed over time. Seasoned turkers had some expectations

and experience of what they could possibly find or not find on AMT on a particular day or time of the day, but they had to 'look' to see if their reckoning was true. Both full-time and part-time turkers had an established start time for a session, but only full-time turkers had the flexibility in their schedule to prolong a session or see it through as required by the task at hand, since they did not have another job to attend to.

5.2.2. Triggers

Turking could be prompted by an external event, in the form of a communication such as – an email, a text on a mobile phone or on social media or a message over a phone call. These triggers originated from their peers (friends and colleagues, or requesters) or through applications that the turkers had configured to alert them upon the availability of particular tasks.

Email

Logging into one's email was almost second nature to turkers, as seen during observation sessions; turkers would log on to their AMT accounts and on a tab next to it, log in to their email accounts. Turkers received email alerts from sites like 'turkalert[29]' informing them that their *favourite* requesters had posted some work online. These emails would have information about the requester, title of the task and a link or URL to connect turkers with the task. Turkers then decided whether they wanted to pursue the task immediately or save it for later, based on their current work situation i.e., whether they had a job to do already or not. Some turkers even considered these emails their 'first option' to look for work, instead of logging onto AMT to conduct a manual search for work.

Turkers had different ways of going about these emails. Some stored them in a dedicated folder in their email inboxes to keep a record of them, while some deleted them after viewing them or completing the task to keep their inboxes de-cluttered for newer emails. Some turkers even had multiple email accounts: one dedicated to AMT-related communication and others for personal items. They logged in to their email accounts periodically or at a particular time in the course of the day to check for work. With experience, they had come to expect email alerts on certain days or at certain

[29] http://www.turkalert.com/ - a requester watchlist site

times in the day and when they did not get any, they logged on to AMT to see the status of the job pool.

Turkers with internet-enabled mobile devices also checked their emails periodically on the mobile, but the management of account – sorting, storing and filtering emails – generally took place when they were logged on to a bigger machine such as a PC or laptop.

Contact from Requesters

Some requesters who connected with turkers and had established a certain level of trust, intimated them about the work privately, outside the AMT platform. Such requesters were called *private requesters* (more on them in the later sections). These requesters contacted the pool of turkers they considered good-quality workers in advance to inform them that work was going to available soon and that they would like these particular turkers to work on them, as Mansoor explains:

> Mansoor, a full-time turker, during an observational study: "Some requesters alert us if they are going to post HITs here on mturkforum. So I go here (on mturkforum) – Taste of the World (points to a post) [..] Here I search. So they tell about posting HITs, they alert the workers before posting HITs." (translated from Hindi)

The communication generally took place via turkers' personal emails; some requesters even contacted turkers on their personal phones. They would provide turkers with approximate date and time of when they would be posting work on AMT, so the turkers could make themselves available to work on the tasks they posted.

Word of Mouth

Turkers who were a part of a network of turkers, informed each other when work became available. For this exchange of information, turkers had different preferences in the use of communication channels. For instance, some liked using SMS, some liked direct calls on their mobile phone, and others preferred instant messaging systems such as Facebook messenger, Gtalk or Skype. Instant messaging (IM)

Services were mostly preferred due to the fact that they were free, and instant, where one could leave messages to be picked up later, or even refer back to old ones from history. If turkers lived in the same locality they simply went to their friends' house and informed them of the new work. Direct physical interaction also happened in cases where two turkers lived under the same roof, such as family members or friends sharing an accommodation. Some turkers who were serious about finding work on AMT insisted on being available all the time, and hence were online almost all the time either on their phones or computers or both, so that they didn't miss out on opportunities of work. The information from fellow turkers was the most reliable, as they generally turked in the same timeframe, similar start and end times, which meant the information they provided was current and already vetted. It also meant that turkers had a lesser chance of losing out on work since their colleagues would use any means necessary to get work information to them, online or offline.

5.2.3. Boredom

When turkers got bored of doing non-turk related work, they switched to turking. Only a handful of turkers mentioned boredom as an initiator of turking, generally students, who turked when they got bored of studying or working on their coursework (possibly as a form of procrastination). Turkers who were full-time or part-time employed elsewhere worked on AMT after they got home from work, if they were not in the mood for anything else.

5.2.4. Pre-accepted work

HITs sometimes came with longer completion times, more than a few minutes, even spanning a few hours, allowing turkers to accept the work at one point but save the *doing* of the job for later. Jobs would still have to be completed on the same day. On rare occasions, they were given more than 24 hours, which meant they could log on the next day and continue with the work they had previously accepted. In such instances, turkers would complete other tasks that had a shorter time span, and revisit the saved jobs at a later point, which got stored in their account logs as an 'accepted' job.

> Barun, a part-time turker, said in a phone interview: "Currently I am more into article-writing [..] 200 – 300 words it will take around 1 – 1.5 hours but if it's more than 500 words it will take lot of time – 3 – 4 hours something like that. If the HIT is available just for 4 hours then I do it, but if some HIT is available for 24 hours then I may think to try something else and keep that HIT for a free time." (transcribed)

This was also seen in situations when the workers used mobile devices to browse the internet when they were out and about, or away from their primary work devices. When the turkers got back to their primary devices they completed the jobs they had accepted earlier.

5.3. Pre-session planning & preparation

Turkers had to plan and be prepared for when the work became available. To do this, turkers had to generate some understanding[30] of the platform that required some guess work and interaction with requesters and turkers. This planning and preparation took place before the actual work began, i.e., before workers were in *session*. The one-stretch duration for which a turker worked on AMT can be called a 'session'. A session warranted a set of activities with a coherent period of doing work, a beginning and an end, which could last between a few minutes to a good few hours. Sessions developed, in situ, according to the possibilities and constraints in the market (e.g., what sort of work was available, how tired a worker was, what personal or professional commitments they had at the time).

When the turkers were not in-session, they tried to spend their time making sense of the inner workings of the platform and of the requesters. Workers tried to get an understanding of the requesters' requirements, the purpose and context of their tasks, as well as their style of communication, approval and payment times. They determined the qualities they wanted to look for in a requester and set work policies for themselves. Some of these judgments had immediate pay offs, some helped turkers in the longer run. In any case, turkers were able to set some tasks as favourites and planned to obtain qualifications, work and money, and assembled tools to prepare for

[30] Martin et al. (2014) call this the 'work to make turking work'.

future tasks. The tools could be specific to AMT, or generic to help improve their digital skills. This section explains some of these measures in detail.

5.3.1. Making sense of AMT

Since AMT is a 'black box', and its operational procedures not transparent, turkers have had to make efforts to observe and learn about the characteristics of individual requesters and AMT by themselves. Turkers didn't know how the surveys worked, what research meant, how Google search and SEO worked or what crowdsourcing meant for that matter. Turkers went to their information resources to understand what different things meant and how they worked; and gathered whatever knowledge they could to develop an understanding of the plethora of things they experienced on the platform. Turkers needed to understand the purpose of the task for various reasons 1) out of natural curiosity to know what it is for 2) to help them perform the tasks better 3) to be able to tell differences between (similar-looking) tasks.

Over time, and through experience, turkers noticed patterns in requesters posting work, time of posting work, instructions, approval times, and task numbers etc. that helped them determine if work was doable, and if so, what pre-arrangements they had to make to grab such tasks. This knowledge was built from experience, discussions with requesters, fellow-turkers and referring to forums; and a tiny part was official, from AMT via direct communication.

Many turkers had developed their own understanding of turking, based on their exposure to the western world and white collar work experiences. This instance illustrates the understanding of task types as described by a majority of the turkers[31].

> Rafiq, a full-time turker, said in a skype interview: "there are 2 kinds of requesters: survey requesters and the batch requesters. Survey requesters - they just put for a while, we done, we submit, and put the code and they will give us $0.40 - $0.30. They are not regular, as much regular as batch HITs. Most of the turkers rely work on the batch HITs only." (transcribed)

Rafiq classifies the work available on AMT into two kinds: survey work and batch work. Survey work here basically meant individual HITs that were posted on AMT,

[31] It is imperative to note that the workers who participated in this study loved doing surveys, and called 'surveys' their favourite piece of work. so it is possible that they classified tasks broadly as either survey-based or non-survey-based.

which came one at a time, whereas batch HITs came in large numbers, in hundreds or thousands and required doing of the same type of work with different datasets. Turkers in Rafiq's network didn't care to distinguish between the different types of tasks, only whether they were batch HITs or not. It is possible that they called every non-batch task a 'survey' because they resembled a survey 'form' in design. Similarly, Elango says that everything on AMT is 'work'. But to have the knowledge of what comes online, when, and in what numbers, a turker would have needed to spent a considerable amount of time on AMT.

> Elango, a part-time turker, during an observation study: "It's all work. They post a lot of work, but you can't tell when they post it, so you keep looking. You can see the total HITs now - 1,95,000 works (HITs) are there. [..] If you do it for 2 – 3 months then you would know yourself that this work would come on at this time etc." (translated from Tamil)

Rahim shares his understanding of HITs, with a broader context from the perspective of the requesters such as when someone establishes a new business and needs support. Once the business is up and running, they wouldn't need AMT anymore, and so, the jobs stop coming, whereas, batch HITs generate databases and thus have a lot of on-going work. Rahim describes tasks he likes and the requester he is working for.

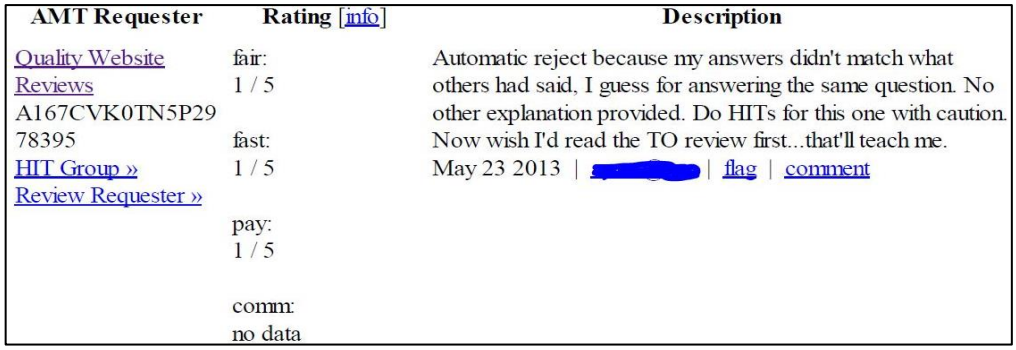
> Rahim, a full-time turker, during an observational study: "(survey tasks) doesn't come every day. It is individually-based, like your work. Like if you are starting an event or a restaurant and you create your presence on Facebook, you need viewers at the beginning so those particular requesters post, saying – please like these – with real accounts, not with fraud accounts. [..] ToW is still there.[..] He mostly puts his batch HITs once or twice in a month. ToW is a new requester, new as in, he's been here for 6 – 7 months. They are US-based requesters so they mostly post HITs at midnight, in Indian time its after 3 am, these HITs sometimes even stay for over 2 days." (part-transcribed, part-translated from Hindi)

US requesters generally posted tasks during the US working hours. Turkers still faced the challenge of breaking down the posting time patterns down to the appropriate time zone followed in the US, i.e., Eastern, Central or Pacific Standard time (PST) etc., and so they generally came online at the Indian Standard time equivalent of PST or later in the evenings. Getting the time right was a matter of careful observation, monitoring and luck. As Rahim explains, he found that his favourite requester ToW posted HITs after 3 am Indian Standard Time (IST), which he generalized into 'during the weekday working hours' in the US.

Gathering information about requesters' online presence was a near impossible feat. Requesters who were unethical and only cared about making money made it even worse, by creating confusion. In the vignette below, Rafiq points out that some of these unethical requesters changed their names and returned to the platform, asking for similar kind of work as they did before, which gave away the fact that they were actually the same requesters. Rafiq felt that turkers were the ones who were risking their reputation, and could lose money or worse, access to the market, but requesters were not penalized for their practices.

> Rafiq, a full-time turker, said in a skype interview: "Another 200 change HITs rejected from the Spiral lab, the same work which I am doing earlier, the same I was doing that batch. But I came to know that that batch was the last batch from the requester and the requester was not willing to pay that batch because of that thought more than 200 HITs were rejected. Because the requester doesn't want to come again. If he wants to come again, he will come with another name, not with the same name, with which he rejected. Risk is from our side only. 60 – 70 % risk is from our sides. Might be requesters will get a poor quality work, that is a 40% risk problem." (transcribed)

He believes that turkers were vulnerable to fraud and more at risk than requesters as there was no system to weed out the requesters except to name them on the online forums or report them to AMT, which might still not stop them from coming back onto AMT with a different name, and scam the workers. Another concept that the turkers came across, feared as well as found intriguing was 'majority rules'. The principle is that for a task a requester accepts the responses given by the 'majority' as correct, and rejects the rest of the submissions. The issue with such HITs is that turkers who are planning to game the system or are lazy do not provide honest responses, which also inadvertently penalizes the honest, genuine turkers. Luke, a full-time turker, explains that turkers in his network actively try to avoid working for such requesters because it is a huge risk and may not be fair to them. He has also posted warnings on Turkopticon, about a requester who has rejected work without any reason, as it was designed to follow 'majority rules'.



AMT Requester	Rating [info]	Description
Quality Website Reviews A167CVK0TN5P29 78395 HIT Group » Review Requester »	fair: 1 / 5 fast: 1 / 5 pay: 1 / 5 comm: no data	Automatic reject because my answers didn't match what others had said, I guess for answering the same question. No other explanation provided. Do HITs for this one with caution. Now wish I'd read the TO review first...that'll teach me. May 23 2013 | [redacted] | flag | comment

Figure 12: Majority rules review on TO shared by Luke

> Luke , a full-time turker, said in an in-person interview: "Do you know about majority rules? I'll show you in Turkopticon. Even if you do correct answer, it will be reject. Many people won't do that work. [..] There will be two persons doing the same work, same website. For e.g. I visit a cricket website and I select sports, then I go to cricket and I submit. One guy from US works the same HIT and he thinks it's some other game so he chose sports and then chose some other game. Mine also is gone and his also [..] We cannot work on this." (transcribed)

Turkers were also checked for quality and attention in their work, by trap or 'honeypot' questions, which were intrinsically placed in a task. Turkers were aware of the existence of these and worked on them, finding them to be a necessary part of the work. Requesters insert obvious questions with 'known' answers in between the questions of a lengthy task such as a survey. For example, the question could be: how many fingers are there in one hand: a) three b) six c) five d) eight. These 'known' answers were meant to test a turker's attention. Failing to give the correct answer would result in rejection, revocation of qualification or even a block.

> Rafiq, a full-time turker, said in a skype interview: "How the client will check the quality of the work of the turkers is.. he will put some known answers .. It means the client already knows some answers of some questions. He put that questions in between those HITs.. and expected turker should give the same answer. If the turker has not given the same answer, the quality rate will go down. After some average quality, the qualification will automatically be revoked." (transcribed)

Many of these aspects of turking weren't common knowledge amongst turkers, especially amongst those who were not serious about turking. They weren't aware of these features and practices, and only worked on the HITs that they liked. Turkers told us that there also existed some turkers who used this knowledge to provide dishonest work to requesters, whose practices were condemned by those who were honest and serious about their work and reputation. Turkers believed that the practices followed

by such workers were unsustainable, and that they would be caught one day and their accounts suspended.

5.3.2. Determining favourite tasks

Turkers developed a taste for certain kinds of tasks, and found a 'niche' area to work on. In this section, we look at how turkers developed 'favourites' and what that meant for their work. These preferred HITs were the first things they looked for when they logged in. The 'favourites' were also a measure of a turkers' experience, time spent on AMT and an understanding of their personal skills and knowledge. It showed that turkers had developed an understanding of what they enjoyed or disliked working on. For instance, Bharat wanted to avoid tasks with data entry, form filling and typing but enjoyed working on tasks that were unique in some way, or simply image or graphics based.

> Bharat, a full-time turker, said in a phone interview: "it's a very interesting HIT to me. [..] it pays $15, it's a psychology study that we have to find out a criminal from the video [..] I don't like to do typing jobs in MTurk like typing visiting cards, billing. That HITs I think are boring for me. I done just 2 HITs of the typing jobs, i.e., copy text from the business cards when I started turking." (transcribed)

Turkers tried to look for tasks that were interesting to them, that they would enjoy working on. Such tasks were not readily available all the time and hence turkers had to resort to working on whatever was available at the time of the search, for the sake of earning money. This was especially true for turkers who used AMT as their primary source of income like Ratish.

> Ratish, a part-time turker, said in a skype interview: "I think less than 50% of work that I do is: I didn't like. Only 50% of the work that I get is based on my interest, based on the money and all. Rest of the things I do it for the sake of doing it, for getting money." (transcribed)

If workers were not dependent on AMT for money they felt free to quit the platform and do something else, rather than work on a task that they did not like, as Barun explains that he does not feel compelled to work on anything.

> Barun, a part-time turker, said in a phone interview: "If we have time and we want to utilise that time then fine. [..] so there are no targets that I have to complete these many HITs or I have to get these many dollars in a day which all depends on my current mood and the availability of the good HITs." (transcribed)

Turkers felt proud of the skills they had, or had developed in the course of working online, even though they might not be recognized at a conventional workplace. For instance, Bala believes that tagging an image required a certain skill to draw the perfect box around an object with precision and that she was good at it.

> Bala, a full-time turker and new mother from South India, said in a skype interview: "Tagging. I like very much. I like drawings (graphics or visuals) a lot. So these feel really interesting and you have to do it accurately too right. You have to draw a box accurately without slashing any other parts of the picture so I take great interest in doing these tasks, without getting bored." (transcribed)

She found tasks memory games and mathematical puzzles very interesting to work on, even though she made most of her money working on batch HITs of data entry type tasks. Most turkers had found a skill for themselves: some were good at typing fast, clicking on links and speed-reading through the content, while some were very good with 'searching' for information on the internet, going through various sources or writing articles in a short time. Turkers recognized their personal talents and tried monetizing them as much as possible, and when there wasn't an opportunity to do that, they either resigned themselves to less-talented jobs for money, or decided to suspend turking for the time-being.

5.3.3. Raising personal scores and obtaining qualifications

Requesters looked for turkers with high approval rates or those with a high number of completed HITs. Hence, in order to get a chance to work on high-paying or a large number of HITs, turkers needed to have a good score. In this section, we see instances of turkers explaining what they did to get better scores. Ratish, a novice turker, explains his strategy of increasing his score and his view of his current status as a turker, which resonated with most of the worker population.

> Ratish, a part-time turker, said in a skype interview: "The total work that I have accepted is 400, ok. If a rejection comes into that, it will affect my total rejection percentage – very high. Now it's running on 4 – 5 % so rejection will cost very much. In that kind of scenarios I go for this, few, small cent works $0.05 – there are some works with a lot of HITs. [..] a HIT that comes with 500 – 600 HITs in a single work and they allow us to take more than 1 HIT at a time. I can work n number of HITs, till the limit ends. Limit is 600. [..] the situation when I prefer this kind of work is to increase my approval rate. So that my rejection will come down. Some of the requesters will

> need my approval rate to be above 95% or my rejection rate should not be more than 5%." (transcribed)

Ratish's total number of HITs was not substantial and so, any rejection of work would cost him dearly. He had started turking by looking for HITs that paid big money but soon realized that because his personal score was not high, he didn't have access to many jobs, and so, he changed his strategy and started looking for Batch HITs to increase his score. He still looks for individual high-paying HITs as they offer better money but concentrates on batch HITs. Some requesters also specifically asked for a low rejection rate and since he was considerably new on the platform, his rejection rate was still very high, and by doing batch HITs he planned to equalize these numbers.

Turkers also had to take qualification tests in order to demonstrate competence and credibility. Mansoor explains the process of obtaining an exclusive qualification for a requester, X8, which has provided him exclusive access to work. The pay is also better as compared with those who are not qualified for the job.

> Mansoor, a full-time turker, during an observational study: "I got one private requester – X8. the qualification HIT had 30 questions. The requester said about 25 of those should be correct to get the qualification. I did above 25 correct, so I got the qualification and he is my private requester. It was $0.45 per HIT, now it has become $1 – because I am qualified." (translated from Hindi)

For an honest worker, these were the only ways to maintain a good score – work on large number of HITs accurately, to keep the completion and approval rates high, and get qualifications to get access to work, which would in turn, qualify them for a vast number of HITs in the future.

5.3.4. Setting work targets

The knowledge gained by understanding requesters and the context of their work was applied to set targets for work, income and obtaining qualifications or obtaining higher scores. Turkers were also able to plan and set targets for work and money based on this knowledge. Some turkers were well aware of their expertise and skill-levels and anticipated their pay to match their skills, which they also compared with other office or desk jobs such as BPO work.

> Aman, a part-time turker, said in a skype interview: "Day-wise I have to earn at least $6 that should come up to $180 in a month, Rupees 10,000 in Indian currency. So that much for me .. for pocket money. But if I completed more surveys, if more surveys are available so I complete up to $10 – 12, much more work. $180 will make Rupees 10,000 right? I decided that I am not going on a job right now. I am in my graduation career. So if I have to go to a job then today's time without graduation the company is providing very low pay to students like Rupees 8,000 - 10,000 or at least Rupees 15,000 in India. There is no company available very near to me. I have to live outside of my home, at PG (paying guest accommodation) so I also have to pay the money to PG. I also have to spend my money for travelling, for eating everything. So if I earn the 15,000 to 20,000 outside of my home then I can keep money like Rupees 10,000 money in hand for saving." (transcribed)

Aman, a part-time turker and student, had set a target of earning Rupees 10,000 ($160 / £110) every month. As per Aman's calculations, students without a degree earned between Rupees 8000 ($130 / £85) – Rupees 15000 ($ 240 / £ 160) in a desk job. He would have to move to a city to find a job, that would cost him more money than he would be earning. So he wanted to work on AMT and make it his secondary income source, so that he could live off the AMT money and save the money he gets from the job for the future.

> Rahim, a full-time turker, during an observational study: We have to finish the tasks within 1 or 2 mins because the common pay for HITs is $0.05, $0.10, $0.15. If we spend 3 mins on a $0.05 HIT then what are we going to make hourly? Nothing. (transcribed)

Rahim set targets for speedy completion of work. To have any earning potential he would have had to complete a task within seconds of accepting it.

Turkers set targets of practising their choice of work to develop competence and get better at doing certain tasks. Working on the same type of tasks repeatedly will lead to building up of confidence and speed in task completion, and hence, a chance of earning a better income.

5.3.5. Setting personal standards for turking

Most turkers maintained a level of professionalism in their work. They felt that they should provide good quality results, if they were expected to get any work from requesters. They set standards for themselves and also shared them with their turker networks. This was also influenced by the fear of loss of accounts from blocks or suspensions. Bala speaks about commitment to work here:

> Bala, a full-time new mother from South India, said in a skype interview: “Requesters are trusting us with a job so we should give it our best, to the maximum extent possible. [..] We shouldn’t be just working for the payment, simply do a job haphazardly for the sake of money. If the HIT has provided you with a half hour time, even if you use 15 minutes of it, give it your best shot as much as possible.” (transcribed)

Nidhi, a Masters student and part-time turker believes that turkers should feel accountable for the work they produce, especially for research studies, as results from it may be applied and have a direct or indirect effect on people.

> Nidhi, a part-time turker, during an observational study said: “See abandon rate definitely should be low, only accept work which you are sure you can complete. It’s unnecessary if you accept and then you abandon it might give out a wrong impression so when you are accepting make sure you are submitting well on time, no abandon no returning of HITs. I've seen people you know, they don’t read questions properly, for the heck of it, they give out answers that might spike the research results to a large extent, because research might indirectly have an effect on us. Because we are not sure, we might use the results of the research in our personal life.” (transcribed)

Luke attached morality to the money he made. He felt that if he earned beyond his set target, it would make him greedy and careless at work, in turn bringing his earnings down from blocks and suspension.

> Luke, a full-time turker, said in an in-person interview: “That time I earned more than Rupees 6500 in 3 days but next day if I want to earn more than that one – it’s called greedy, plus you'll get more rejections, more blocks. we want more money, we want more money but we have to calm down.” (transcribed)

5.3.6. Using external tools for turking

The turker community based in the U.S created a number of scripts and plugins and posted information about them on online forums which turkers world over, including in India, found useful and installed on their computers. AMT’s policies prohibit turkers from using any external software or scripts to carry out work, but these terms are very vague. Some of the tools’ functionalities include alerting workers regarding new work, providing support for faster browsing, helping with the doing of accounts and so on. In one of the most popular alert tools, Turk Alert, turkers had to know who they wanted to work for and feed the names of such requesters into the system ahead of time, so it can notify them when their HITs went online.

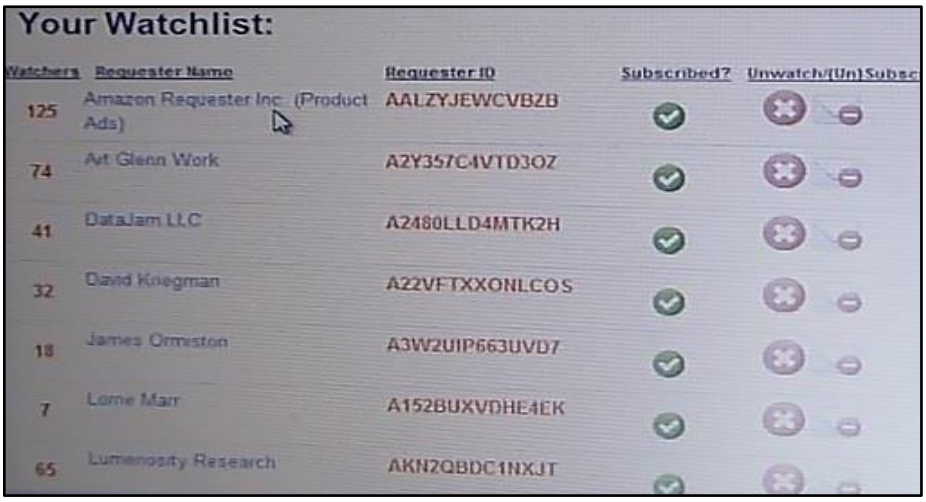


Figure 13: Turk Alert watchlist of requesters for Luke

> Luke, a full-time turker, said in an in-person interview: "For e.g. Amazon Requester Inc. this is my favourite requester. So if you add this requester id here (on to requester watch list). Or Oscar Smith [..] whenever they upload work, it automatically send email, so I will know whether they have uploaded work so I can work on it. (I keep checking email) every 1 hour." (transcribed)

This tool occasions work by sending emails with Hyperlinks that drives turkers to click on them and look them up. The other most popular tool amongst turkers was Turkopticon (TO), which is a reputation management system for requesters, populated by the workers. When working for new requesters, those turkers who knew and had installed TO on their browsers, would go through it to look for ratings and comments on new requesters.



Figure 14: Turkopticon-in-action as seen through Luke's account

Serious, full-time turkers were confident in handling external software and plugins and used it to their advantage when they were asked to work on requesters own interface or application. Such turkers took pride in being able to find and deploy these tools to optimize their work performance, and believed this to be their skill, which differentiated them and put them above other turkers. Rafiq gives examples of shortcuts he uses for work:

> Rafiq, a full-time turker, said in a skype interview: "we should show some difference between that turker and us. Suppose if we consider one HIT – copying some data from the HIT and searching it in the Google, and the client asks us to give the URL of the official website. What the Turker will do is – copy, means he drag the word (select the word), whatever the requester has given, he Ctrl+C or right-click copy and again come to the Alt+Tab and come to the Google paste it.. and he just rely on the Google-indexing – whatever the words / listings will come he will give the URL form this one. Every turker will do that then what is the difference (between them and me)? My approachment is 'so we have to copy?'. 'Ok!'. I want to reduce the copying time. So I have installed auto-copy 1.0.8 add-on. It is an add-on which can auto-copy it means just if we drag it, it will be copied. No need to Ctrl+C. Its saving my time and (chuckles) saving, conserving my energy also because all our MTurk is based on our hands itself. [..] And also, we are going to move from tab to tab in a window so everyone will do like a Ctrl+Tab. For that one, I got a script from one person from mturkforum [..] I will not do Ctrl+Tab, I just press tab, tab, tab to move from one tab to another tab in a window. So like this, I research on so many shortcuts on these scripts which makes works most easier." (transcribed)

Turkers' use of additional tools also depended upon their knowledge and digital skills. For instance, Luke tried to get the extension 'Greasemonkey' to work but couldn't. It is a superscript, a script to manage other scripts. He thought he could run it by learning C and using video tutorials but it was too difficult for him and so he gave up.

Most HITs required turkers to have software utilities to be of the latest versions. Turkers learnt about and built a repository of the standard softwares required such as Java, Adobe Flash player and reader, and they kept them up-to-date in anticipation of work. Some turkers were happy to work using external softwares, while others were apprehensive about security and did not trust external plugins and scripts, and avoided tasks that took them away from AMT to work, as Bala's vignette explains.

> Bala, a full-time turker and new mother, said in a skype interview: "Actually we are working with a system (a PC) and so we have already downloaded all these things – flash, pdf – so if we have the required software already then no problem, but if they give a link and so go download this then I won't do it. The scripts and all are 3rd party scripts. Mturk in itself is a secure site and so I don't want to bring in external scripts into this." (transcribed)

5.3.7. Mundane ways to record and analyse information

We see in this section some of the methods turkers used to observe and keep track of good requesters by recording information and analysing it using commonly available tools. For instance, Luke, a full-time turker, found that requesters also had an ID, and started bookmarking HIT pages of requesters on his Chrome browser.

> "Luke, a full-time turker, said in an in-person interview: See these are the HITs available right now. Once I start accepting, it will show here (in the URL space) the requester ID and all so I can go and do.. See this is the requester ID (a string of characters in the URL), I usually bookmark this one. Once you bookmark this – no need to go to HITs Available to you, no need to go account or anywhere, directly you can come to the bookmark." (transcribed)

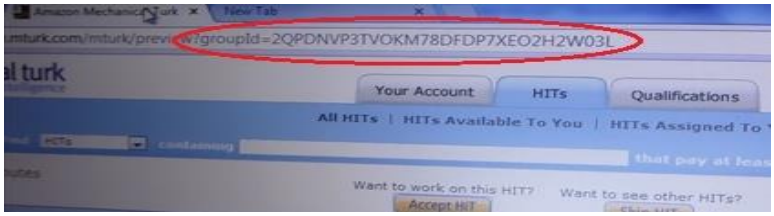


Figure 15: Luke's bookmark, showing requester / HIT ID

When looking for work, he would go to the bookmarks list on his browser and click on each link he had saved previously to see if there was any work posted by them. He followed this practice if 'finding' work was not triggered and a simple manual search did not reveal any 'suitable' tasks.

Elango, a part-time tuker, used the auto-fill form data feature of Google Chrome that stored data typed into form fields to look for requesters. He looks for familiar jobs by searching for requester name or job type.

> Elango, a part-time turker, during a walkthrough exercise: "I have already typed and kept this (in AMT searchbar using Chrome) – like the word survey, along with that select option "for which you are qualified", then press go, whatever you see are the HITs you can work on .. (as) there are a lot of jobs that you can't do." (translated from Tamil)

This autofill information runs into hundreds of requesters. He claims to look for them alphabetically, sometimes from A – Z, sometimes randomly, hoping to find that one of them has posted some work. He goes for untried work if he is unable to find any work from the ones on his list.

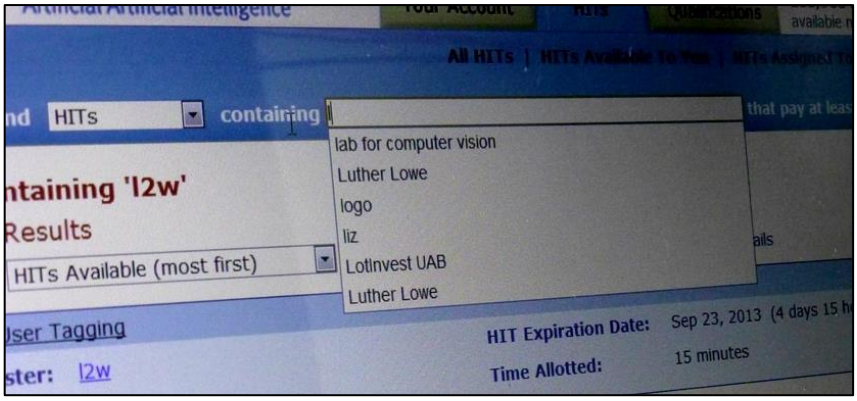


Figure 16: Snapshot of Elango's requester options in Chrome's autofill, letter 'L'

Quite a few turkers reported having an Excel worksheet to list information about requesters such as type of work, allotted time, actual completion time and so on, as seen in the screenshot below.

Requester Name	Requester ID	Work	Pay	Approval Time	Date Posted	Feed
Taste of the world	A2EILHT073BDZZ	Verify Restaurant Listing	$0.15	3 Days	24/05/2013	Auto Approva
Steven Schneider	AG0STDFCPTFT8	Collect Contact Names From Website	$0.22	2 Days	08/06/2013	
Steven Schneider	AG0STDFCPTFT8	Find the address/location for companies based on their website	$0.14	2 Days	08/06/2013	
Prospect Smarter	A1B1HKBOWQ4RNE	Locate contact in Jigsaw LNS	$0.02	1 Day	07/06/2013	
Jim Moran	A1PYRX1ALA36JD	Verify businesses' URL	$0.04	0.03 Day	07/06/2013	
Demand Jen	A1VEVSJE8XLHVZ	Find the Website Address for thic company	$0.05	0.02 Day	06/06/2013	
Al Ghergich	A1HTPXGAZGXM4J	Simply Find The Email Address For These Websites	$0.09	0.03 Day	04/06/2013	
Matthew Grimes	AZ3OG4H4DE9WU	Find the social media profiles listed on a Company URL	$0.20			
Michael Brooker	A1BLK5J2I3AGOI	Proofread and spell check brief job postings	$0.10			
Dotmenu Web	A3DS33O5SAEPM8	Find Menu Links	$0.04			
Real Estate Research	A2CQVSX8OBR5X1	Determine if a house is for sale	$0.04			
Edward Kohler	A3HFKJFKTAUKM4	Does this property listing contain duplicate photos?	$0.04			
Edward Kohler	A3HFKJFKTAUKM4	Does this property description have grammar, spelling or formatting problems	$0.03			

Figure 17: Rahim's excel sheet of requesters

Rahim had made this excel sheet for himself but shared it with 2 or 3 of his good friends. He stored information about requesters that he had designated as his 'favourite'. Rahim used to religiously update this database, but his dedication gradually dissipated. He also kept an excel sheet with his monthly earnings that had graphs showing income withdrawals every few weeks, which he regularly maintained for personal record-keeping. But most turkers searched for requesters from recall, or simply by searching for task type.

Starting a session

Turkers did not jump into turking immediately after work was occasioned, but required some pre-sessional preparations. Before every work session, turkers did a number of mundane things to 'get ready'. This 'starting to turk' on a particular day is what we call 'beginning a session'. A session can last between a few minutes to a few hours. It is characterized by being productive and completing tasks on AMT on a particular day, and everything that's done immediately surrounding this goal in order to achieve it.

In general, turkers worked in the evening after 7pm, during the American daytime, and so, turkers generally logged into AMT at around 7 – 7.30 pm every weekday night. As discussed above, starting a session requires mental, digital and physical preparation. The time they spent also depended on the availability of computers and the internet, especially in scenarios when these were shared. Even with the flexibility of working from home, turkers had to compromise on sleep, work timings and manage their personal lives in relation to turking. These are explained in the following sections.

5.4. Set up a workplace

In theory, turking only required workers to have a computing device, log onto AMT and start turking, but in reality it required thought and certain preparations to be carried out. For instance, turkers had to decide where to turk from, how to make oneself comfortable before starting a session, and so on. This preparation took a few forms: physical preparation meant setting up a dedicated place to work and getting ready with devices and technology that turkers wanted to use. Digital preparation involved logging on to web-based accounts such as AMT and Facebook. During an observation, Mansoor was working from a friend's laptop and found it difficult to work, as the computer was not 'set-up' physically or digitally according to his needs.

> Mansoor, a full-time turker, during an observational study: "Actually I wanted to bring my laptop. I gave it to my friend for formatting, but he did it incompletely. Drivers still need to be put in, so I gave it back to him to complete. I thought my friend has a laptop I can simply use it to show you but that has created a little problem. [..] My laptop has an i3 processor, configuration on this

one is lower, and this one is a core 2 duo. [..] I will re-install the softwares and tools on my laptop when I get it back. [..] Tools, scripts, plug-ins, everything. Without that I am not comfortable." (part-translated, part-transcribed)

Turkers prepared mentally by freeing themselves of other commitments and focusing on AMT for the session. Turkers also took breaks during the sessions as and when required. These breaks were also influenced by the turkers' living situations, such as whether they lived by themselves, with family or friends, or lived in a hostel. These aspects are described in detail below.

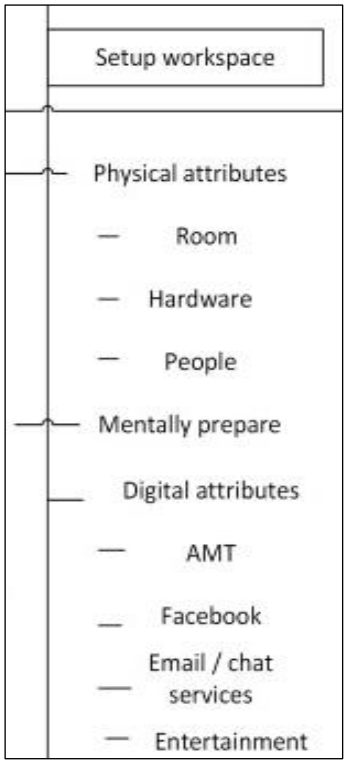


Figure 18: Setting up the workplace: attributes

5.4.1. Mentally prepare to turk

Regardless of whether the session was occasioned by a trigger or was part of a daily routine, these activities and the thought of 'work' led turkers to mentally prepare to start turking. They had to stop doing whatever else they were doing (household chores, relaxing or studying) and switch to turking. Full-time turkers had to be ready to stretch their work into late hours of the night, as long as work was available. This also meant they knew the requirements in terms of concentration and mental effort, that there was work that needed doing, and what the next steps were for them. These

included getting ready to set up the workspace, determining the work that needed to be done, allocating resources for turk and getting support on non-turk related work from friends and family e.g., getting a cup of tea from a spouse. Part-time turkers had other full-time responsibilities and would generally log off before or around midnight.

5.4.2. Physical attributes of the set up

The physical attributes of setting up a workspace included setting up the room or the physical space to work from. Turkers also set up their hardware such as a computer, internet device, and computer accessories, which varied based on where one lived and the amount of time one spent on turking. Turkers also had to manage their support network and the people they lived with, such as family members, flatmates or fellow-turkers in order to work around them.

Rooms

Many turkers lived in family homes and had a separate, dedicated space for keeping a computer and a broadband connection. For students, this space was generally a room called the 'study room', where they kept their books and materials concerned with their education or entertainment. This room was semi-private or private and generally had a door or a curtain for seclusion. Turkers with study rooms generally had a good-sized work-chair and a work-desk containing space for a PC or laptop and other accessories.

For turkers living with families, walking in to the study room and closing the door or curtain indicated being 'busy' or the start of a turk session to the other family members. During observations we saw turkers being called out loudly by their family for meals. If brief unimportant interruptions were to be made, for instance, for asking a question, these were generally asked in a softer tone by a family member peeking through a door or curtain opened halfway, meaning the interruption was not very serious and the worker did not have to leave his work to respond to it.

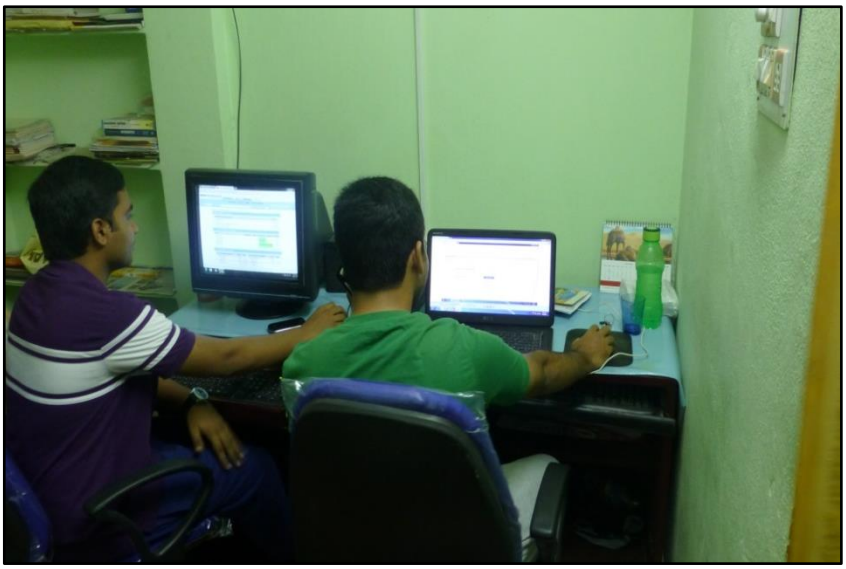


Figure 19: Rahim's study room

Non-student turkers also had such dedicated rooms which were not specifically referred to by a particular name during our interactions or in the absence of a room – at least a desk with a desktop computer or laptop. Turkers who lived in shared accommodations with friends or in hostels did not always have private space or a desk for work. During the fieldwork, two turkers that were visited stayed in PGs (paying guest accommodations) where large 3 BHKs[32] were converted into hostels and each bedroom hosting 5 to 6 beds lined next to each other. These PGs had a common area to eat food and in some places, a common room to watch television. In these cases, turkers generally turked from their beds on their laptops, sat on the floor, or worked from the common rooms which also had some plastic or sofa chairs.

Nidhi turked from her PG's bed when she got back from work, as others were still at work, and it was quiet, and she could think and work on things that required concentration. Few turkers also reported having a desk that was shared between flatmates, and using it when others were out, but most turkers reported turking from their beds, until they felt tired and switched positions, as it was convenient to turk from there, than to move around with it.

[32] Bedroom hall kitchen apartment



Figure 20: Nidhi's PG room

Living in PGs also meant that when turkers went to visit their family they had a more dedicated workspace for turking, as well as a better internet connection.

Hardware

The hardware set up for turking was found to be very basic in most cases. It involved getting the computer and internet ready. Turkers we interviewed generally worked either on a laptop or a PC. Laptops had to be picked up, carried to the place where they wanted to work from and prepared with initializing the digital aspects of turking. A handful of turkers used laptop stands and external fans as accessories for the laptops to prevent their laptops from overheating. Turkers used mouse(s), external webcams and headsets or earphones while working, and so, had to connect all of the accessories before starting to work. Turkers with a dedicated workspace usually did not have to set up their machines and external devices every time, especially those who had a PC, as they had a dedicated work-desk, if not a room. Some turkers accessed AMT on their phones. In most cases these were mobile phones, whereas a handful also owned a smartphone. Mobile phones were generally used for monitoring work prior to session times, and in occasional cases used to actually 'work' through them. During a work

session turkers kept their phones close for social purposes or in anticipation of calls regarding work information.

PCs for home in India came with a UPS (Uninterrupted Power Supply for a computer), which enabled people to work on the UPS battery for some time and allowing them to save their work before switching off. Even with development of auto-save in technology like MS Word and options to 'restore' a browser back to recover the session prior to sudden shut down, turkers continued using a UPS with a computer.

Most turkers used a national or broadband service if working from their homes, such as BSNL (national) or Beam (regional). Turkers used mobile internet dongles - devices that could be plugged into a computer via the USB port. Turkers bought different broadband or data plans based on how much internet they were using in total, and not just for AMT. They had to ensure there was enough data on their device for work. This also dictated the amount of time they were able to spend searching for work or the type of tasks they wanted to work on. For example, 2G data was enough for simple form-filling tasks on the mobile phone, and complex text-based or image-based tasks required 3G data, or a connection to the broadband or fibre optic internet services. Turkers were able to choose between these based on the tasks they did or wanted to do. Luke explains his situation.

> Luke, a full-time turker, said in an in-person interview: "I had 2G plan but it was difficult. I was using Idea Netsetter. It was Rupees 201 per month unlimited. Like Oscar Smith (OS) projects you can work on. It's a little slow, uploading, downloading will be slow. Then we cannot watch movies etc. Only – you can browse or facebook, gmail .. [..] Netmsi.. Actually their work is tagging. Once you accept the HIT, it will take 2 – 3 mins to load because of quantity. [..] they ll give only 10 mins. Sometimes my net was slow when I was working, so I told – 'Please 5 more mins, loading takes time for me' [..] They said - we don't want to enjoy, we want work. " (transcribed)

Having the right infrastructure was also a measure of turkers' socio-economic status and their knowledge of better options available. In the example of Luke above, when he began turking he used a 2G plan, but later upgraded his internet to 3G once he learnt that 2G hindered him from doing good, high-paying jobs, and that there was an option of getting 3G data which was not overly expensive for him. The cost of infrastructure was a concern where turkers were only turking part-time, were dependants, or students.

People

Turkers generally informed other members of the household before they sat down to turk, so they would not be disturbed except for important things or calls for meals.

> Bala, a full-time turker and new mother from South India, said in a skype interview: "Mother-in-law also lives with us, so she also attends to the baby (11-months old). She will help me a lot. Its because of her – she taking care of all household matters – is why I am able to work on this. Food – cooking. Cleaning – we share and do it. If I have work, I tell her "I have work please don't disturb me" and she ll take care of things, but if I don't have work then I will do." (transcribed)

Turkers shared a collegial relationship within their network of workers, and so they tried to be available online or on call during work times. Session start times were common knowledge between them, and they generally started work at similar times from their respective workplaces. They did not just intimate each other regarding new work, but partook in social conversations as well- discussing topics such as their personal lives, non-turk related work, cricket, and movies, amongst others. They used social media sites and call and text-messaging services to communicate. Social media was the preferred mode as it was always available, convenient and free.

5.4.3. Digital attributes of the set up

In addition to getting the 'physical' workplace ready, turkers had to get ready 'digitally'. Logging onto the work platform, the social platforms like Facebook, and entertainment channels formed a part of the digital preparation. Almost all turkers used Google Chrome as their browser, though a handful used Firefox or Safari as an alternative, or worked on their phone. In general, turkers switched between browser tabs, often between AMT, email, and Facebook. Some people who found it difficult to concentrate closed any non-turk-work related websites while turking.

AMT

Turkers logged onto their AMT worker account and went to the dashboard to begin a turk session. Turkers also ensured that their browser and the various plug-ins and scripts installed on it were running in the background. Turkers' order of going through the different features of AMT varied and was based on their previous turk sessions or their personal preferences. They could start by getting an overview of what work had been approved, how much money has been paid in or see if there was anything that demanded immediate action, e.g., if previously submitted work was rejected. Turkers then moved onto the AMT HIT dashboard (job pool) to see what jobs were available.

Email and chat services

Turkers logged onto their emails, most commonly Gmail and Yahoo, to remain vigilant for Turk Alert emails regarding new work or any communication from requesters. Turkers were also keen to receive AMT's weekly work summaries or emails about money withdrawal. They used their emails to keep a record of work or communications from AMT or requesters by saving relevant emails in their inbox or occasionally in a separate folder in their email meant for AMT. Turkers wanted to keep track of their personal non-AMT related communications as well. A few turkers reported having a discrete email account for turking, to separate it from the email account for personal use.

Some turkers also used chat services to stay in touch with their fellow-turkers; commonly seen were Gchat, Facebook messenger, and Skype, a couple of turkers used Yahoo Messenger or free texting services like Wehat. Some turkers who were mentoring others stayed online via skype. Many turkers preferred to stay online on AMT, Facebook, email and chat clients at the same time, but some preferred not to, owing to bandwidth limitations or to limit distractions. In the case of the latter, they would periodically open these services to see if any new messages had arrived.

Facebook

Most turkers logged on to Facebook simultaneously while turking. This allowed them to stay in touch with fellow-turkers, browse through different turk groups to see if there was any news about any recently posted jobs, or simply stay connected with their AMT and non-AMT friends. Some turkers reported compulsively checking Facebook every few minutes while turking and thought of it as a distraction, while others treated Facebook as a break and checked their Facebook feed as a time-out activity. To facilitate this, some turkers left their Facebook tabs open while turking, some checked it on their mobile phones only, and those who felt distracted kept it closed. Those who kept it shut simply had to type the letter 'f' in their browser and it would bring Facebook back up when they wanted.

Entertainment

Some turkers liked listening to music while turking, and so, would open a tab of YouTube or another streaming website on their browser while turking. Other turkers reported using FM radio or listening to music on their phones with pre-existing playlists. Some turkers sat in the common room or living room and let the television run to watch a movie or a TV series, while they were turking, except for when they were working on tasks that required their complete attention. Some part-time turkers reported playing games on their computers or mobile phones, and reading articles on the web between working on tasks. In general, if turkers had a batch of tasks to complete which required them to focus on the work, they paused or closed their entertainment channels to avoid distraction. If the tasks at hand did not require as much mental effort, turkers would either switch back and forth between their entertainment sources or leave them running simultaneously.

After 'setting up' turkers have to decide what they want to do. We describe what this process entails in the next section.

5.5. Determine the status of field of work

This feature of crowdwork is comparable to 'starting a day' at any job: checking the status of previous work that was completed and deciding what needed to be done for the current session. Quite broadly, turkers needed to do two things to determine the status of their work: (1) generate a picture of the field by checking the status of previously submitted work (2) establish the next steps by deciding whether to take any remedial actions or move on to working on the HITs.



Figure 21: Building a picture of the field of work

There is not a particular order in which these activities took place as they were based on individual turkers' work or monetary needs. If turkers had been working on batch HITs that have hundreds or thousands of small assignments, lasting over a few days, turkers would login and look at the status of these jobs – how many are available? How many can the turker still work on? Existence of such batch HITs during a turker's session would mean that turkers do not have to go looking for 'new' work.

The order in which these activities took place also depended on the following: (i) turkers' like or dislike of available jobs e.g. some turkers did not like data entry jobs, so when they found a lot of such jobs on AMT, they decided to keep searching till they found one they liked better, (ii) their mood at the time of work e.g., if a turker was getting back from a busy day at a primary job, they may be in no mood to do any type of work, (iii) regular turk-related habit e.g. some turkers had created the routine

of logging in and visiting their AMT account the first thing, and they followed this routine regularly, (iv) other personal circumstances or needs at the time of the session e.g. if they needed to reach their weekly average income goal and were eager to find more work as it was already Thursday evening. The Turkers' main objective remained the same: to ensure their account's safety and continued existence, so as to provide continued access to work and money. To achieve this objective, it was important to know what was going on with AMT and one's account. This section describes the steps involved in this exercise in detail.

5.5.1. Build up a picture of the field

Before starting work on a HIT, turkers had to check the status of previous jobs and determine what was going on with AMT (jobs and requesters) and their account. 'Previous' work refers to both previously submitted as well as previously accepted work[33]. This section describes the activities undertaken by the turkers in determining these 'goings-on', mainly those that took place between the end of a turker's last session, and before the beginning of the next, to build up a picture of the field of AMT and its job supply for the concerned work session. On AMT, when turkers submitted a completed piece of work, it went to the concerned requester for reviewing. The requester then reviewed it manually or via AMT by default[34]. This review from a requester would either be an approval or rejection, and could take a few minutes, hours or days, based on the requesters' circumstance.

After logging into AMT, turkers checked the status of the work they had previously submitted – whether it got accepted or not, and the subsequent earnings they received from the work. For some turkers, this exercise gave them a sense of satisfaction to view their scores and earnings. They felt satisfied, or pleased, when their work got approved, and disappointed when their work got rejected. For some turkers, it was 'simply work' so they did not feel anything extraordinary if the work got approved, but felt sad, disappointed or curious when work got rejected, as in such cases, turkers had not anticipated the results they had received, or were not clear 'why'. Turkers also

[33] although finding work with long allotted completion times is a rarity.
[34] Reviewing happens by default if requesters set 'auto-approval' times, which means jobs get approved after a certain time period.

looked for ‘feedback’ regarding previous work, and if turkers had weekly or monthly targets for earnings or raising their approval rates, then the account data showed them how close they were to achieving it.

The most common trajectory followed by turkers was to go to their account page after logging in, to see what had happened to the work they had previously submitted. If turking was occasioned by a trigger, such as a phone call or text message, turkers may choose to postpone checking the status of their account, head straight to the AMT dashboard instead, due to the urgency of finding the work they were prescribed. Failure to do so meant they might lose that task.

Approvals and Rejections

Approvals were straightforward. Turkers did not have to take any action if their work got approved. In a conventional office job, turkers would have managers or team leaders giving them orders and setting work targets, whereas on AMT, they did it all by themselves without any personal guidance from the ‘employer’. As a result, when their work got approved, turkers felt happy about their accomplishment for executing a task successfully. A few turkers also felt proud that their work was being accepted by American employers, which indicated it was of a high standard.

Some of the work turkers submitted got through; however, if their work got rejected they tried to work out why. There was no singular standardised measure for successful work, which made it difficult for turkers to figure out why a piece of work they thought was of high quality was rejected. AMT did not allow the workers to go back to the task they had completed, they could only look at the account page and see the result of the job they had submitted. Because of this, it was difficult to guess what went wrong and why the work was rejected.

Rejections were dealt with in different ways. For some turkers who were curious about what went wrong, rejections led to a further set of activities. These turkers were generally confident about their work and expertise, and anticipated a positive review of their work, and when that did not happen they wanted to know why. Turkers who were not confident about their work assumed that it was their mistake and chose not to pursue it further. The key factors in dealing with rejections were: the competence of

the turkers, the level of comprehension of the task and their expertise in the English language, and having the skills demanded by the task. These factors impacted the perceived and actual ability to confidently investigate why some work had been rejected. Quite a few turkers found probing into the situation to be a hassle and preferred moving on from the job as Pranav's example shows.

> Pranav, a retired turker, said during a phone interview: "some requesters say upfront 'you have taken this survey before' and so you are not eligible to work on this again, return the HIT, which is good. But some requesters don't tell you, the HIT shows you are qualified, only when you submit the HIT, they say 'it's been duplicated now' and reject the HIT. you do feel sad but its ok. [..] Its unfortunate that it got rejected, you did what they asked you to. But they remain quiet, they can choose to reply or not. There is a front and back of the form, did you complete both, did you do it well, did you submit it properly? Who knows. [..] Oftentimes.. when I get irritated, I ask my son 'he has rejected my work, what should I do?' and he says. 'Write! Write to him' and enquire with the requester, but I have never written to one. And I think - What to write now? If he has rejected, then he has rejected it, forget it, I don't take the tension. 'ho gaya toh ho gaya' (what's done is done)." (translated from Hindi)

Rejections also served as a way to assess the quality and intent of a requester: 'Were they going to stick around for some time on the platform? Were they fair in approving the work? Did they care about the quality of their work?' and so on. The rejections dictated if turkers would work for the same requester again[35]. Some requesters simply found it too complicated to un-reject a task, even if they had accepted the fact that it was not the turker's fault.

> Rafiq, a full-time turker, said in a skype interview: "Another point is they don't know to reversal. Then, again, I am googling and came to know of how to reversal, from the forum and everything. Then I sent the links to them – how to reverse the rejections." (transcribed)

Turkers could also see their current rejection rates in their account pages. They could calculate their rejection rates taking into account the HITs that were pending review by the use of a plug-in, to give them an idea as to what their scores might look like if their work got rejected (or accepted). Turkers assumed that most of the decent work went to turkers with 90% or above approval rates. Turkers with low scores wanted to bring their rejection rates down to 0% since that meant higher approval rates and a higher chance of getting good work on AMT.

[35] The steps turkers took to rectify rejections have been described in the 'repair' sub-section 5.4.2.

Feedback

Beyond checking approvals or rejections, turkers also looked for messages they might have received from the requesters regarding work they had previously submitted or a response for a query they might have asked. Turkers might have received or anticipated a response to a query from AMT. These messages directly went to turkers' email accounts so they could see these as soon as they logged in to their email accounts. In case they had not logged on to their emails already, looking at their accounts page might trigger this activity i.e., if a task got rejected, turkers might see if they received an explanation as to why this happened.

Payments

Most turkers found some sort of satisfaction by looking at the payments page, to many it was a sign of doing good work. It also served as a confirmation of the quality of requesters for the turkers – their fairness and promptness in making payments. Many turkers had installed plug-ins that calculated an estimate of their future earnings for the tasks they had submitted for approval, which somewhat set the turkers' expectations. The earnings were provided in the form of digital money accruing in their AMT account. This was not real money that turkers had ready access to in their bank account or cash – getting this money out actually was a long process, explained in section 5.6.3. Looking at the money in their accounts enabled turkers to plan what they wanted to do with it: let it accrue further or withdraw it, when to withdraw and how much?

5.5.2. Establish what to do next

Some of the activities required in 'building up a picture' required immediate counter-actions. When results that came through did not match their expectations, it amounted to turkers taking extra measures. When results were satisfactory, turkers would move on from looking at the status of the previous work to finding and doing work for the current turking session. Turkers generally quickly determined the status of previous jobs at the start of a session, moving on to do tasks or actual 'work'. Most of the times

the tasks available to Indian turkers were also available to turkers in the US (Martin et al. 2016), and so, there was always some competition within the market trying to get as much work as possible, while work was still available online.

Repair

When turkers found their work was rejected without clear reason, they got confused as to whose fault it was. They try and contact the requester to get a clarification regarding why their work got rejected. Rejections may happen as: 1) the requester was a novice and so did not know how to operate AMT well and so, the design of the HIT or the instructions provided did not work very well, or they accidentally approved or rejected work, 2) turkers misunderstood what was required of them, 3) there was a genuine human error and turkers clicked one button instead of another leading to an incorrect answer and 4) due to technology failure. Experienced turkers sought explanations, as for them approval rates, were their "bread and butter", something of daily and continual importance. Turkers with lesser experience or time (part-time or sporadic turkers) did not necessarily pursue damage repair steps actively.

There was also a difference in the communication and confidence between full-time vs part-time turkers, or experienced vs less-experienced turkers. The former group of turkers were confrontational and preferred to have an explanation to be able to avoid the mistake if it was theirs, and avoid the requester if it was not. The latter group may not be able to see the value in getting an explanation, and so, simply avoided contact with requesters, and did not want to put in too much effort or get tensed over a rejection.

> Salman, a part-time turker said in an in-person interview: "First check the instruction. If I understand – good, if not I discuss with others – what is this. Then they tell me – don't do it this way, do it this way or contact the requesters and they mail and confirm – don't do it like this, do it this way. Sometimes they don't respond. Even then what we do, don't want to take a risk, we check it a little bit. If we take a risk and do a lot it might all get rejected, so we do little (a few HITs). If that's correct, gets approved then do more. If its wrong, then you get a reply in your messages, if that doesn't happen then we know we are doing it right." (translated from Hindi)

Turkers who sought explanation also rigorously tried to contact requesters to overturn decisions that were wrong or to get compensated for it by way of more work, so that

their approval rates were not affected. Turkers first looked for information on social spaces like online forums and Facebook groups. If no information was available, or if it was too limited for them to make a judgement, turkers wrote to the requesters directly.

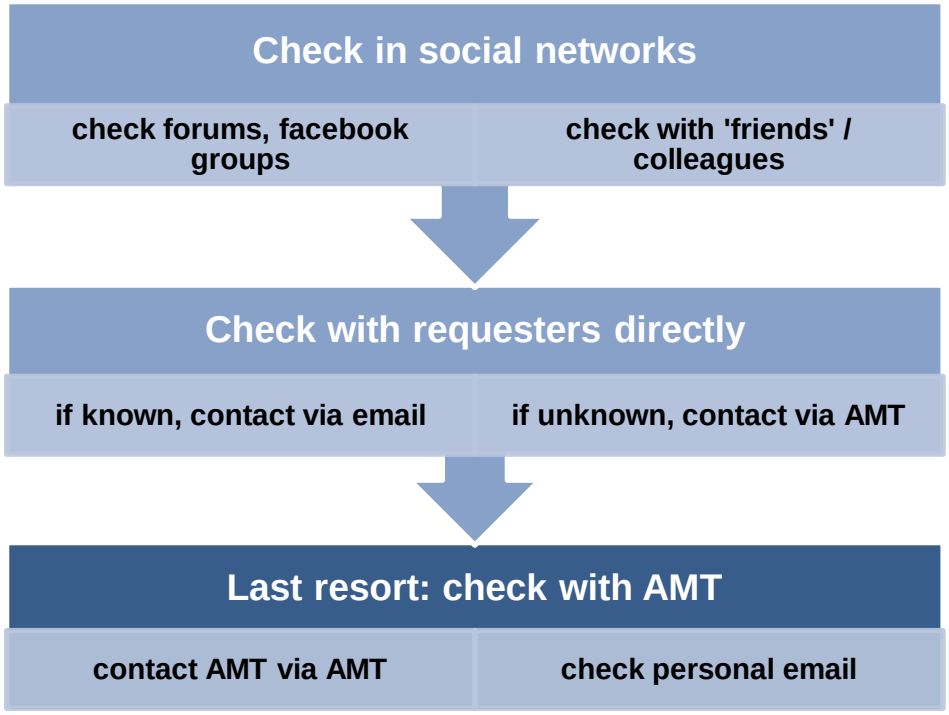


Figure 22: Repair work: possible routes to get an explanation

If they had previously worked for a particular requester before, they contacted them via emails, but if they were not familiar with the requester and had no established contact, then they sent messages via AMT or the forums. In desperate situations, such as when a lot of HITs had been rejected, when there was no news about the work submitted, turkers even contacted AMT. This was generally the last resort, as there was no guarantee of a response from them. Turkers also discussed with or warned fellow-turkers about requesters who did not respond. Some of the senior turkers reviewed them on forums, as well as used turkopticon to create a record of them.

Turkers with low-confidence in either digital communication or English language skills contacted a fellow-turker for advice or guidance before contacting the requester. The advice could be on why the event happened, what should a turker do to rectify the situation or even 'what' (content) to write to a requester. Therefore turkers had some

options through which to disambiguate the situation. In fact these options were followed by the less confident turkers for almost any activity: communication, payments, finding or doing new work, since they feared losing their accounts.

> Sarath, a part-time turker, said in a skype interview: "if we are asking, giving back feedback, then they will give the block, block our accounts.. this has happened to one of our friends, so. My friend is asking for amount for some work. That time the requester has given the complaint to the MTurk people that he is asking every time money, extra money, the MTurk people has sent him the warning message. If you get 2 or 3 warning message they will block our account, so we are not contacting." (transcribed)

Sarath says that for the amount of work the HITs demand, the pay is not great, but he is afraid of asking for more money or writing to the requester. One of his friends got his AMT account blocked, which Sarath and his friends attributed to contacting the requester. His friend thought that the requester had made a complaint against him to AMT, which resulted in him getting a warning and a block.

It was also commonplace for turkers to share AMT login details between friends. This was not limited to AMT, especially in a mentor-mentee, senior-junior relationship or where one turker had better soft skills than the other. They also shared details of email accounts and social media accounts. Turkers generally only logged into another turker's account when requested – to look at something that was not right or look at a task that the account-holder turker had been unable to do because of complications (instructions or lack of understanding).

Complete ongoing work

If a task has a longer 'allotted time' or turnaround time, turkers have the choice of 'accepting' the task and coming back to it later. Turkers report that these tasks are hard to find, and somewhat of a rarity, however if turkers did find such a task they would take it i.e., 'accept' it and come back to finish it at a later time. Turkers who had already accepted work in a previous turk session continued with the work that they had accepted. In some cases, where turkers had received recommendations about jobs from their friends, they might contact the requester and show their interest in doing the job, such as for game-based studies, surveys and tasks that did not come in

large batches, but had more than a few assignments posted, and were interesting to work on.

> Sapna, a part-time turker, said in a skype interview: "sometimes when there are no patients at the clinic, or no appointments also I login just to have a check if anything is there or no [..] I check on my mobile phone only. [..] So if there is sufficient amount of time I just accept the HIT and I keep it. 24 hours or 2 days.. So normally I accept those HITs and keep it and after I come back home I do those HITs." (transcribed)

Even if turkers were not experts, they all had been turking for sometime and so were quick in doing individual assignments, and in moving from one microtask to the next. On days of large batch HITs turkers were ready to put all 'other things' in their life on the backburner, as otherwise they risked losing batch HITs to competitors. Turkers also switched work if they were bored or fatigued to 'keep them going'.

> Mansoor, a full-time turker, during an observational study: "I tried one (HIT) yesterday but it's a little boring. When you start. I didn't work on these before so it seemed a little boring and the workload seemed enormous so what I did was – I read the instructions and then I left it. And started working on something else." (translated from Hindi)

It is worth noting that not all turkers felt they had the luxury of switching tasks, due to the lack of 'flexible' time, or a desperate need for money where every task counted. However, almost all turkers had found their favourite or 'niche' tasks that they could do better than other tasks (see section 5.2.2).

Find new work

After turkers had logged in and gone through the results of previous work and decided there was no more administrative work to do, they set out to find 'actual' work. This process could be simple or complex depending on a turker's individual requirements and personal circumstances. They looked for work based on a certain criteria they had either set themselves or have been advised upon by fellow-turkers or mentors – such as money, time allotted, and ease of understanding instructions. They used various channels to gather this information based on their preferences, including using social media, talking to friends, or doing a manual search without input from others. These are explained in detail in the next section.

5.6. Find suitable work

Looking for work – we unpack what 'looking' means here. As it is the nature of crowdwork, turkers had to 'job hunt' themselves as opposed to in conventional office jobs where employees are given a job description and provided with a number of tasks to do by a manager. This was the most important part of the job, without which no crowdwork would be possible. This meant turkers had to put in time and effort in finding the task that is right for them. The data showed that both the requesters and turkers tested each other and looked for both quality and trustworthiness. Requesters who were looking to use the platform more than one time looked for workers they could trust and re-use. Turkers and requesters sampled each others' goods and decide whether they want to acquire their service. This was a typical characteristic of a marketplace with one major difference being the sampling of goods here could affect the scores of the workers. Consequently, turkers can be blocked or suspended, preventing them from being able to do any more work, and requesters could receive negative reviews on social community sites, in turn affecting their ability to demand work on the platform. However, the workers had more to lose as it was not possible for one person to create more than one AMT account if they were not based in the US.

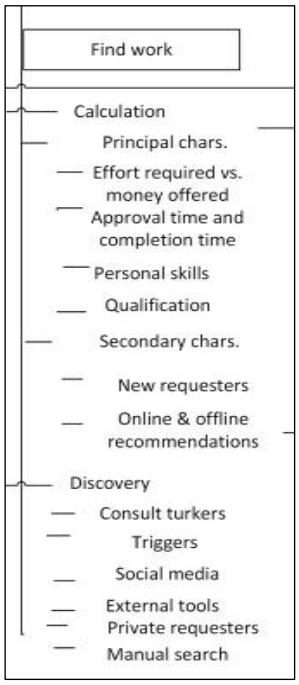


Figure 23: Finding work: calculation and discovery

In the section below, we describe how turkers found 'suitable' work by assessing the characteristics of the HITs against certain decision criteria, as well as, describe the 'pathways' that lead them to potential 'work', that helped them build trust and find work.

5.6.1. Calculating suitability of HITs

The section first describes what 'suitable' work meant to turkers, the characteristics that defined such a task and the calculations made by turkers to determine 'suitability'. This sections also answers the following questions: What makes a job 'worth' doing for a worker? Do turkers have limitations in the work they can do, if so, what are they? What are the resources turkers use to inform their decisions about suitability of work? Elango's anecdote sums up turkers' situation succinctly.

> Elango, a part-time turker, during a walkthrough exercise: "Actually work is there all the time, but we have to find the kind of job we can do and do it." (translated from Tamil)

The term *suitable* here is relational, and a feature of multiple elements - the requesters, the HITs, the platform and turkers' personal situation, skills and the current state of available infrastructure. These *suitable* HITs could be individual assignments or batch HITs, with each task having a different measure and characteristic, which makes *suitability* a dynamic feature of work. This section provides description of some of the nuances that affect finding 'suitable' work with exemplars from turker practices. The key routes turkers take to find suitable work are briefly listed here:

1) Know intuitively what task to pick owing to familiarity with it
2) Consult a friend or look up on a social platform for referred task information
3) Take a chance and try out a task that turker has mixed feelings about
4) Pick completely new (unfamiliar yet interesting tasks) from the existing options – due to lack of familiar choices.

While looking for work, workers also discovered and evaluated what they liked, disliked, and what skills they were capable of providing, and what technological infrastructure they had or they needed, to decide if a task was 'worth' doing.

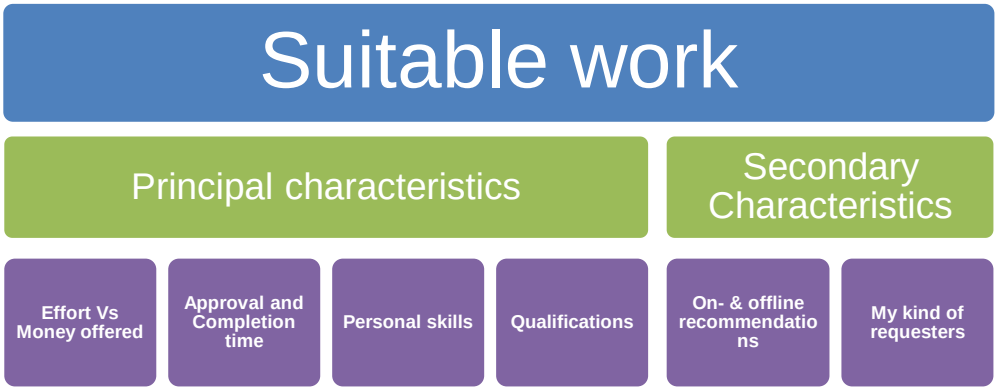


Figure 24: Characteristics of *suitable* work

Based on the data, these factors can be characterised into principal and secondary characteristics, and they are explained below in detail.

5.6.1.1. Principal characteristics of *suitable* work

Turkers could be familiar with the task at hand, i.e. the task could be one they had worked on previously, or it could be a new task that they have never seen or worked on before. Luke's vignette explains 'familiarity':

> Luke, a full-time turker, said in an in-person interview: "Now if I start working with Oscar Smith, I know beforehand instructions – whatever instructions he is giving, so once I get their work – I know it." (transcribed)

If turkers found a familiar task during their search, they generally limited their decision criteria to a few principal characteristics such as effort, money, time, and personal favourites.

> Aman, a part-time turker, said in a skype interview: "actually I know about these tasks [..] and they also gave me higher pay as compared to the whole other tasks." (transcribed)

Aman lists further advantages of working on familiar tasks. He feels that he also receives higher paying tasks from these requesters due to his loyalty to them. Turkers looked for the following key characteristics in tasks: pricing, time, and, skills and qualifications required. These factors were mandatory for all types of jobs: familiar or unfamiliar; only unfamiliar jobs warranted additional checks on them. This section elaborates on these principal characteristics.

Effort required Vs money offered

One of the most important criteria for turkers to calculate if a job was desirable or 'worth' doing, was to look at the effort needed for the work and the money offered for it. *Effort required* was not given, it had to be calculated. It was calculated variedly by workers, primarily based upon the amount of cognitive or physical effort that the task seemed to require at first glance. Sometimes *effort required* was also calculated based on the amount of time a task might require for completion with the skills they had. Aman's vignette explains the measures of time taken and effort required for the price of the task.

> Aman, a part-time turker, said in a skype interview: "mostly I do work on surveys. [..] These surveys are of $0.50, $1, $2 etc. [..] I always check all the surveys if its less pay or high pay or they are giving bonus to me. [..] if a task giving us $0.50 atleast, it should be upto 10- 15 mins, not more [..] if its taking 30 – 50 mins, then I return the task because I don't want to waste much time for less pay. [..]
> NG: What about searching on google and filling out data type tasks?
> Aman: That I have to search for just the names or links; that takes like 2 - 3 mins. If you have to search for full details like contact, email address, phone number then I have to search through many different sites so it takes upto 5 – 10 mins, that's why I don't work on those tasks much." (transcribed)

Aman would rather return or avoid the HIT altogether than take up work which required more effort for low pay. Nidhi explains that for her, survey-type tasks required low mental effort, and from experience she could estimate the time required to work on one; she applied this calculation before choosing a task.

> Nidhi, a part-time turker, during an observational study said: "Surveys can be done quickly. I don't mean to say that I don't concentrate on them. Its relatively easy, you don't have to apply your brain or thoughts into it, simple instructions, so you don't need a deep analysis of your emotions and your thoughts as that goes in writing. So say 100-question can be completed in max. 20 mins if its big." (transcribed)

The pricing of a task played a big role in the selection of work. Turkers had the choice between *batch* HITs that provided hundreds or thousands of little assignments paying $0.02 - $0.50 each and *individual* HITs offering larger amounts for one task. Well-paying *individual* HITs were desirable but harder to come by, and hence turkers in need of serious money looked for *batch* HITs for consistency. Turkers calculated a 'good price' by taking into consideration (1) previous experience of similar jobs (2)

having their own expectations of what piecework should pay (3) defined market rate by learning from online forum discussions (4) comparing earnings with friends and colleagues. These calculations were dynamic, and were developed based on how much time they spent turking, their infrastructure, skill and experience.

Turkers reported earnings with a high degree of variance – some as less as $2 - $5 per week to as high as $80 - $150 per week. There was a notable difference in attitudes and expectations of pay between full-time, part-time and sporadic turkers, as illustrated below. For Santosh, a part-time turker and high school student, some task prices seemed highly questionable. He converted the price of a task into Indian currency and found a pay of Rupees 0.60 or 60 paise demeaning (it amounts to less than $0.002 or £0.006 for an individual HIT). Although Santosh has not done research into labour market pricing and minimum wages for India or anywhere else, he found it unreasonable to earn less than a rupee for piecework.

> Santosh, a part-time turker, said in a skype interview: "Rates provided by requesters are very low, if they raise those it ll be good. Isnt $0.02 less?
> NG: If you are completing the task in 1 second, shouldn't 2 cents be enough?
> Santosh: No it takes atleast 2 mins. I don't calculate anything as such. See, $0.01 is 55 paise or 61 paise (Rupees 0.51 or Rupees 0.61), would someone pay 61 paise for 1 HIT ? [..] A minimum should be $0.10 for a small HIT." (translated from Tamil)

Rafiq a full-time, professional turker, and the bread-winner in his family felt the pressure of making as much money as possible from turking as his livelihood depended on it. He did not like working on tasks that did not pay well, but when work of his choice was not available, he would compromise and take up low-paying HITs as 'back-up tasks', to keep turking and keep the money coming, and help maintain his scores.

> Rafiq, a full-time turker, said in a skype interview: "Like that there are so many Indian Turkers, new turkers, approached me, to tell about something any kind of logic, shortcuts. I just asked them to make a research most on mturk – follow these things, give respect to $0.01, $0.02 HITs. [..] Because see, sitting idle without doing any work means.. we have the source of doing $0.01 - $0.02 and also we have the source of doing that task also in short time. Like suppose $0.01 - $0.02 HITs if we do a 1000 HITs. Suppose if we do $0.01, there is a batch called Brittanica – it was $0.01 HITs. In a day if we do a 1000 HITs, how much we get? $10. If there is no other work throughout the night for us. If we repeatedly do, the whole night, the Brittanica, we can easily get into 500 – 1000. I just suggested this to every new turkers also because – build up your HITs. Because for some HITs some requesters will ask turkers who have more than 30,000 approved HIT." (transcribed)

Turkers also kept an eye out for tasks that promised extras in the form of bonuses or repeat work; requesters of such tasks were valued. Interestingly, some bonuses were appropriate, some were larger than the actual pay for the task itself, as was the case in the following example:

> Bala, a full-time turker and new mother from South India, said in a skype interview: "You get a lot of bonus (some games-based tasks). I got $7 bonus for this task last time. and the actual HIT pays $3.50 [..] They come in such a way that you can play only once, like surveys." (transcribed)

Turkers remained hopeful about finding bonus-paying tasks as they were easy-money.

Approval time and completion time

An important criterion for turkers to pick a task was by requesters' approval time – the time it took for the requesters to go through submitted work and give the resulting pay to the turkers. This could be instant, a few minutes, hours or even days. Turkers preferred if the approval time was within a few hours. Approval time is not a feature integral to AMT and can only be seen if turkers had installed a particular script on their browser to make it visible. They could also seek social media forums to find requesters' approval times. Most turkers looked to work for requesters with the shortest approval times. Luke shows the plug-in he uses to help decision-making about choosing a task.

> Luke, a full-time turker, said in an in-person interview: "They (turkers) have requesters who approve after 30 days. We have to wait 30 days – they auto-approve after 30 days – but 30 days! [..] People wont work for that. Even 10 days they wont wait. Oscar Smith only 30 minutes, after 30 minutes, they auto-approve." (transcribed)



Figure 25: Auto-approval time of a requester shown by the use of script

Requesters can set auto-approval time for tasks, and so if they do not have the time to manually review the submitted work, AMT would approve it for them after a certain time period and the turkers would get paid. Most turkers preferred fast approval times,

since it meant faster payments, yet many full-time turkers did not respect requesters who did not personally inspect the work turkers submitted. This meant they were not serious about quality of work they received as Rafiq explains.

> Rafiq, a full-time turker, said in a skype interview: "To know the good requester, from my point of view, the good requester - who will approve at the same who can take care of the quality also. Some requesters are not taking care of their quality of work. They just uploading and just giving the auto-approval. The requester who seeks for the good quality by putting some qualifications or putting some known answers, then they can get quality work and quality turkers also." (transcribed)

The other measure turkers used was 'completion time'. Turkers preferred to work on tasks that offered a short completion time. The time taken to complete a task often ranged between a few seconds to a few minutes, though sometimes took a few hours. There was usually a difference between the time provided by requester - the 'allotted' time - and the 'actual' time required to complete the work, which could be called the 'execution time'. Completion time was usually not an accurate measure, since requesters offered this time based on their own calculation and most often tried to be generous with it, Ratish shares his opinion of using 'time' as a measure.

> Ratish, a part-time turker, said in a skype interview: "Time.. time is not reliable. Some of the HITs, they will put 60 mins for just 5 mins task or 3 mins task. So we cannot rely on time." (transcribed)

Turkers preferred if requesters were generous with the allotted time, so they could complete the job in time. If a requester was new to the platform, their inexperience generally showed in matters such as 'completion time' allotment as described in the vignette below.

> Bharat, a full-time turker, said in a phone interview: "The HIT from that University, the Requester name is Dicloro lab.. just clicking the image, first one image will came, after that a combination of 4 images will come, we have to click what images we saw. Totally 560 images. They gave only 30 minutes, very low time. I contacted Requester if he increase the time to 50 minutes, again give HIT to me. [..] Again I had to take it from the first step and I completed in 40 mins." (transcribed)

When turkers encountered task designs that did not work, some workers did not recognize it as a flaw or feel confident enough to do anything about it, however some took measures to remedy the situation. In Bharat's case, he contacted the requester, who changed the completion time and gave him a second chance to work on the case,

but he had to work on the task from the start. This meant extra work on his part, which was a common issue for workers. Technology and infrastructure failures (explained later) could also cause errors, and harm worker reputations.

Personal skills of a turker

The personal skills turkers had could vary, based on knowledge, speed, effort, clever use of time, technology and other resources. It showed the difference between novice and experienced turkers, as well as casual and serious turkers. Rafiq, an ex-QA engineer from suburban India, talks about a skill acquired from a previous job that he transferred onto AMT. His familiarity with the US data format allowed him to go through the AMT tasks at a great speed. He was accustomed to and had access to US geographical data sources as well, which he used to his benefit when working on data entry tasks on AMT.

> Rafiq, a full-time turker, said in a skype interview: "I first started with requester name - Oscar Smith, it was visiting card data-entry work. [..] Earlier to this mturk I was very habituated with U.S. data format – their addresses, email addresses, what is their format because I had done all my projects in my software company as a QA engineer on the U.S. domain, incidences, taxes. So I was very much fond of the U.S. data." (transcribed)

Bharat's skill was to be able to use the internet to find and make judgements about the usefulness of browser extensions, install and use them to his advantage. A Chrome extension he had installed refreshes the page every few seconds automatically, allowing him to view the latest job on the platform as they come.

> Bharat, a full-time turker, said in a phone interview: "In Google Chrome there is an extension – if I give time 3 or 4 seconds then it automatically refreshes. I am using that extension. I am using Google Chrome browser. Not able to refresh by clicking refresh .. refresh.. refresh .. not like that (he doesn't have to click on the refresh button anymore)." (transcribed)

Being able to use the internet for information or to look for additional help such as extensions might seem like a trivial issue, but in actuality, many turkers were first generation college-goers and computer-users and they had not been using a computer or internet for very long before starting to do crowdwork, or as a part of their everyday routines.

> Bala, a full-time turker, said in a skype interview: "If I have to download a software it doesn't make me feel very safe.. if they give a link and so go download this then I wont do it. [..] I wont take up a task which requires me to do that." (transcribed)

Bala here shows reluctance in installing or accessing any third party software or links, which in turn, limits the type of tasks she can take up. Knowledge-based tasks such as writing an opinion or survey based on personal experiences were hard to come by, but turkers liked them and kept an eye out for them.

Qualifications

Qualifications were set by the requesters in order to attract turkers with the optimal skillsets. These qualifications could be simple criteria set by requesters based on the number of tasks a turker had completed, their approval or rejection percentage and their geographic location. They could also be complex, where requesters 'test' workers by asking them to complete a task or a series of tasks before awarding them a qualification. A special 'Masters' qualification could also be awarded by AMT to workers, implying they were specialists in certain jobs. If turkers did not have the 'qualification' necessary for a task, they would not be able to preview or work on it. Requesters could create their own qualifications and award them to trusted workers. To do this, some requesters first tested workers by giving them a sample of work and based on the results they awarded them qualifications. In this way, requesters could segregate desirable candidates and create a database of them, and when creating HITs, only allowed these workers to access them.

> Mansoor, a full-time turker, during an observational study: "Taste of the World has a score system and he [a friend and fellow-Turker] has scored 100, that's why he still has a lot of work to do, and I don't. 'qualification match' requires that I should have done 5000 HITs, my value is 42000, it says 'I meet this qualification requirement'. The reviewer value required is 100 and mine is 50, basically meaning mine is below 100, so I am not qualified. If I could work on these HITs even I would not go to my institute. Now HITs are available 24X7 for these guys (who have score of a 100) and I see them everyday but can't do them, which hurts a little. I was careless when the Requester was testing Turkers with qualifications, so my score is less. I should have worked hard [...] but I was in a rush." (translated from Hindi)



Figure 26: Mansoor not qualified for a ToW HIT

Mansoor's case is self-explanatory. His low score during the qualifications test has implications for him in terms of the ability to access better-paid work. Sometimes requesters explicitly let turkers know that they were conducting a qualification test, but many times they were judged without prior intimation. Tests usually came in the form of a task, and hence, blurred the distinction between the actual task and a qualification test. This method of supplying qualifications worked well for requesters, in cases where they were researchers conducting studies and wanted to stop the same turkers from repeatedly participating in their studies. Requesters conducting research studies in parts could provide surveys by 'invitation only' as well, which only allowed selected turkers to work on the HIT.

> Mansoor, a full-time turker, during an observational study: "I think this is second part. That means whoever has already worked on the first part can only work on this. You cant directly do second part. I don't remember whether I did or not before. But I've heard this requester name before 'Tara Marshall'. This is $4 HIT. (He reads) 'By invitation only. Your HIT will be rejected if you were not invited for this study.' So this is not for me." (part-transcribed, part-translated from Hindi)

By looking at the HIT preview and reading a few instructions, Mansoor can tell that this is part-2 of a survey. He is almost sure that he did not work on the part-1, but $4 is good amount, so he does not want to turn down the opportunity without verifying it. The requester's name sounds familiar, so he might have worked on it. He reads the instructions further to be absolutely sure, then checks his email to look for the requester name to see if he worked on the first part. Upon checking, he does not find an invitation in his email, which meant he would not be able to work on this task.

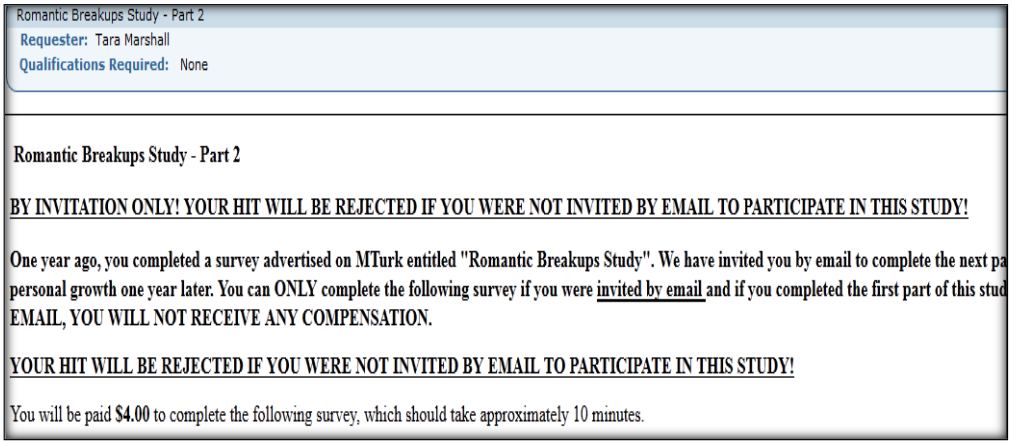


Figure 27: Mansoor finds an 'invitation only' HIT

To prevent turkers from working on tasks again or without invitation, requesters sometimes also apply 'blocks' called a 'soft block' on specific turker profiles, which shocked and frightened those who did not understand the process or the rationale behind it. Luke researched the web and found out some information about this phenomenon:

> Luke, a full-time turker, said in an in-person interview: "There are 2 blocks – soft blocks, hard blocks. Soft blocks means within your system (personal account for a particular task) you can block. But if you block with Amazon then its proper hard block. I think I got 1 soft block. [..] Block means no work at all. If you get blocked then they ll send a warning message saying that you cannot work with this person anymore." (transcribed)

Soft blocks were temporary blocks meant to prevent the same workers from working on a task, whereas hard blocks meant revoking access from the AMT amount, were a judge of quality, and meant that the requesters did not want particular workers to work for them again owing to poor quality of work. Requesters had the power to revoke these blocks, but this rarely happened for two reasons. Firstly, AMT's design made it cumbersome for requesters to un-block workers, and secondly, requesters took action only if they cared and had the time for remedying their action. As a result, turkers could only prepare themselves by having good personal scores and relied on requesters' kindness and discretion.

Another aspect workers did not understand was how the Masters qualification works. There were benefits of having a Masters.

> Salman, a part-time turker said in an in-person interview: "You keep working then suddenly the CAPTCHA is there .. if you do 35 HITs.. and you need to type it in then move forward. Sometimes the CAPTCHA irritates you, sometimes even after typing the right CAPTCHA it shows it to be incorrect, then ask for another one. Master doesn't have these problems – he keeps cracking on straightaway. They have a lot of work to do – a lot of surveys etc." (translated from Hindi)

Masters qualification allowed turkers to work uninterrupted on batch HITs, where there is otherwise CAPTCHA after every few HITs, which slows them down. Some turkers attributed their inability to achieve it to the randomness or general unfairness of the system. Whether there was hidden inequality or not in the Masters qualification, turkers expressed considerable frustration at the lack of clear guidelines on how it could be achieved.

> Rafiq, a full-time turker, said in a skype interview: "The only one thing we are afraid of mturk is 'Masters'. All the HITs were going to Masters, what we are then? [..] when you are putting Masters tell them what exactly you need, what it is the Masters, but you are telling that "Do many HITs, do all kinds of Hits, make consistence, make accuracy" that's what we are doing right now! Why are we not allowed to do Masters ? [..]There is no equality. When there is a work quality given by Indian, the same kind of U.S. then why won't you give a special credentials to Indians also. Work is work anywhere." (transcribed)

Due to not knowing the reasons behind the qualification setting of 'US only', turkers felt discriminated and left out from getting access to better-paying HITs. Lack of information led to speculation, generating myths and theories.

> Rahim, a full-time turker, during an observational study: "mturkforum has been created for the US workers. It's the popular one – requesters communicate here. Mostly when these guys post HITs, Indians are not qualified for it. When a requester posts HITs he assigns qualifications like particular worker should be US or Indian, if they are restricting Indians then we cant do them. [..] You can feel that they dominate Indians, there is no doubt about that. As in for those who are not native speakers of English, they don't get that work. The problem with that is – they (US turkers) get good paying HITs." (part-transcribed, part-translated from Hindi)

Many serious full-time turkers felt that as a result of hidden inequality in the marketplace, AMT was discriminating against Indian turkers. They felt the inequality was clearly enforced by not allowing Indian turkers to attempt to complete the Masters qualifications, when Indian turkers were equally deserving of it. From discussions with other turkers and reading information on online forums, turkers had come to believe that the Masters qualified turkers received more work (quantity-wise), which

were high-paying. Turkers speculated different requirements for a Masters' qualification such as below:

> Aman, a part-time turker, said in a skype interview: "I don't know how to check, how to take that qualification. They didn't provide anything. I am just thinking that if my approval rate goes to 100 then it should be that I am a Master. I am just thinking but I don't know [..] my approval rate was 99% I am very near to Masters." (transcribed)

"Do as many HITs.." to get the Masters, was the consensus. However, nobody really knew what the terms of the qualification were. They speculated that if they worked on a 'variety' and 'large number' of HITs and do 'good' work, they will be awarded this qualification. One turker also suggested (wrongly) that turkers had to be recommended by 3 requesters to AMT. Almost all turkers set high standards for delivering work while turking on a regular basis, and so it baffled them, as they did not understand what made it special.

An intriguing type of HIT was a $0 HIT. Turkers said that these types of HITs served as qualification tests – looking for a particular skill or accuracy in results. Turkers worked on these, like 'loss leaders', with the hope that they would get paid somewhere down the line for these tasks in either money or repeat work, even if there was no money in the short term.

> Pandit, a part-time turker, during an observational study: "I like to do surveys but when they are not there this is the kind of HIT I do. I cant do any other work on mobile that's why. And I cant study either, its boring. [..] I sent an email to Amazon Requester asking for more work. They only give $0 HITs... Lets see." (translated from Tamil)

Another type of gamble was competitive HITs (Fig. 28 below). Out of a 1000 assignments, the top two workers who complete the most number of assignments would get paid in bonuses of tiny amounts.

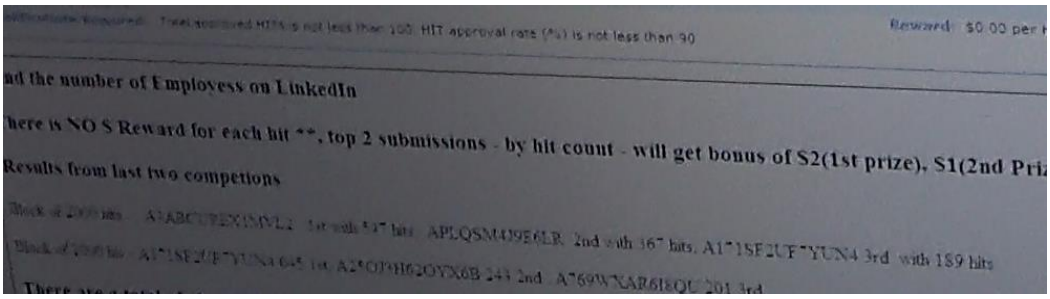


Figure 28: HIT gamble. Only top two submissions get paid.

These type of HITs were a gamble, but the allure of possible future opportunities and lottery-type wins made them take the risk. Turkers generally took up these HITs when the other options were not so lucrative: studying, doing chores or waiting for the HITs that they preferred to surface on AMT.

If turkers came across an unfamiliar task, one or more criteria from the secondary characteristics were then added to the decision-making process, since unfamiliar tasks required vetting.

5.6.1.2. Secondary characteristics

The market being dynamic as it was, the type of HITs that might have been available 6 months ago might not be available any longer, and a turker's ratings might have gone up or down as well, changing their access to work. *Suitability* of work was further dictated by the availability of turkers' preferred work on the platform as well as turkers' personal scores on the system. If during their search turkers could not find familiar jobs, they had no choice but to go by trial-and-error. In this situation, turkers made their decision about a task or a requester by looking at the secondary characteristics on top of the principal characteristics. Part-time turkers found themselves in this situation more often than full-time workers, as they spent less time on the platform to be able to secure regular batch HITs or private requesters, and thus, had to work on individual, unfamiliar HITs. The factors they applied were the reputation of requesters, as well as recommendations from online and offline sources, as described below.

New Requesters

Turkers generally had an idea about the kind of requester they wanted to work for, and looked at new requesters against a set of established characteristics as Bala explains.

> Bala, a full-time turker, said in a skype interview: "a qualified requester.. payments should be instant, they should be spot payments, should approve. The pay should be befitting to the job they give. There are some whose tasks are extensive but payments are very meagre. Suppose we have a problem and we email them, they should respond to us instantly from their side. Some requesters don't respond to our emails." (transcribed)

These characteristics led to finding a *good* requester. Across the board, a *good* requester was seen as one who:

- communicated well and provided turkers with clarifications when needed
- was prompt in approving work
- paid fairly for good work
- provided regular work or was at least predictable with regards to job postings
- had high or positive ratings on online forums – primarily Turkopticon and turk-related forums (or) came as recommendation from friends

Turkers wanted to maintain a relationship with them to get regular, repeat work from them. This also related to turkers' exposure and experience: the longer they had been on AMT, and the more communicative and experienced they were, the easier they were able to find new requesters and build relationships with them, or move on if the requesters were not *good*.

Most turkers had installed Turkopticon (TO) and used it when looking for new work. TO's ratings were based on communication, promptness, fairness and generosity. Turkers checked the ratings and read the reviews posted by others before performing their own verification and checks to confirm the requester information. Rahim, a graduate full-time turker, elaborates on his technique of determining if a requester is trustworthy or not, by using the reviews on Turkopticon but taking them with a pinch of salt.

> Rahim, a full-time turker, during an observational study: "See the recent review and the first review for a requester. To see if the requester is old – and whats been written in the recent and the last review for the requester. If the review is negative then we back-step, even if one is positive, then we atleast try some 10 – 12 HITs or 10 – 20 HITs." (part-transcribed, part-translated from Hindi)

If by looking at the reviews he felt convinced that there was scope for a HIT or a requester to be genuine, he would give them a try; he would only give a requester a pass if they had no positive comments about them at all. Turkers looked at the ratings and if they were neutral or good, they would start working for the requester rightaway. If the ratings were average or poor 'red' then they would want to know why, and so turkers would go to the turkopticon website or mturkforum forum looking to uncover the reason for requesters' bad reviews. For turkers like Rahim and Luke, it did not

matter much if there were too many bad reviews about a requester. They wanted to give a requester the benefit of the doubt, as it was possible that people had ranted about them at some point but the requester had now changed their ways. As Rohan explains:

> Rohan, a part-time turker, said in a phone interview: "I use Turkopticon (TO), check the ratings and do the work. I actually don't rely or trust the reviews there because they have given low ratings to a lot of good requesters. I only check if I can do the job, if I can do it, then no problem." (translated from Hindi)

Many full-time turkers wanted some kind of information about requesters to help them work with the unknown. Turkers were careful about not doing too much work for a completely unfamiliar requester in case they rejected the work that was submitted to them. This uncertainty of what will happen to the work submitted was a cause of anxiety. Due to the difference in response time and lack of instantaneous communication, it also led to turkers lose out on potential jobs, and requesters losing out on good workers – when turkers had to wait around for results. But across the board, ascertaining a requester's quality was not possible without trying some HITs out, as Luke explains and shows the email conversation he had with the requester.

> Luke, a full-time turker, said in an in-person interview: "Bad name, means they will block. I usually contact the requesters by mail. [..] There is 1 requester who uploads more than 50,000 HITs. Rob Mark, I think. There was no comment nothing (on turkopticon) but it was slave labour. What I did was I communicated with that person directly – 'I am afraid of rejection and how are you going to deal with it'. He replied that day itself 'don't be afraid'." (transcribed)

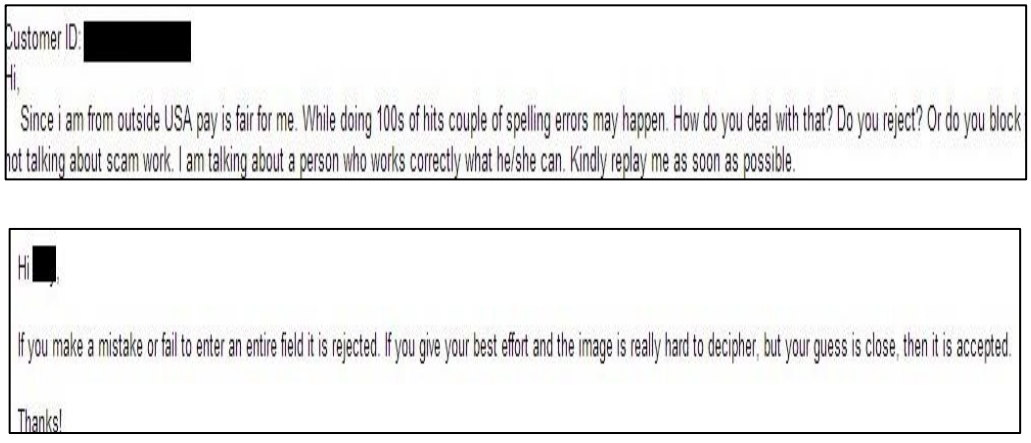


Figure 29: Luke's email communication with a requester who had no reviews on TO

Luke reviews the comments provided for a requester and contacts them if they had been given bad reviews to see what their explanation was. Indian turkers also showed distrust and caution against Indian sounding requester names on AMT as they were infamous for providing 'scam jobs', taking work from the turkers without paying them, then disappearing from the platform. Turkers could not easily protect themselves from such requesters and hence cautioned each other by spreading awareness about them. Weeding out 'scam' requesters was also part of the 'search' for workers. Rahim, a graduate full-time turker, calls a HIT that he cannot trust "suspicious". Rahim gives examples of how to spot these insincere requesters:

> Rahim, a full-time turker, during an observational study: "if the HIT looks suspicious, if we cant make out anything then we ll communicate, email the requester and if even then we don't get a response, we do 2 – 5 HITs for testing. To see if the work we are doing is actually satisfying the requester or not. [..] Maximum 90% it gets approved, but 10% there is scam work as well who don't approve irrelevantly reject the work. If there is a requester and asks you to do a survey, and its pay is entirely different – its neither $1 nor $2. Its in between $0.26 or $0.76 and mostly the way it works is after we complete the survey, we don't get the completion code. We can't even submit the HIT. [..] If we see that he has been rated on TO then we avoid the requester. But if he is new we somehow know half way what the requester is like." (part-transcribed, part-translated from Hindi)

1) The price of the task looks different: most genuine requesters pay a round sum of $1, $2, $3 but the scammers offer to pay an odd looking sum. 2) At the end of survey there is no completion code, which is the key to getting paid – which in most cases turkers would only find out after they have accepted and completed a task, which means it's their loss. 3) The price of the task is generally less than what a turker would expect for the workload of such a task, but this realization only strikes after they have accepted and are some way into the work, to find out how unreasonable the money they are getting paid is. 4) Such requesters have almost no positive comments on Turkopticon, if there are any comments at all. However, since the requester is new, turkers have no choice but to take the risk and work on a few tasks before deciding for if a requester is worth revisiting. Barun, a part-time turker, points out that working with new requesters is difficult initially as they do not understand how AMT works. He gives an example of the 'approval rate' setting of a HIT that requesters can set to select turkers.

> Barun, a part-time turker, said in a phone interview: "(With new requesters) Its very difficult. Because some new requesters – he has requested for some qualification required.. and he has

> requested for the approval rate to be more than 90. So while updating that he updates qualification required – approval rate is 90. So its very difficult for some users who (don't) have the accuracy of 90 only. So even though I am having a rate of 99 I am not able to complete that HIT because it should be exactly 90. So as the requester will gain some experience he ll come to know these details. So sometimes we just have to ping the requester and update the relevant info that it should be more than 90 or something like that." (transcribed)

If the approval rate requirement is set equal to (=) 90, no turker above or below a score of 90 can work on the task, whereas what the requester really wants is to select turkers who have scored equal to or above (= or >) 90. In such cases communication helps, yet turkers can only contact the requester if they have accepted their task or have worked for their before. Unless the requesters use forums and are responsive there, they would not get good turkers doing work for them. Turkers were found willing to overlook the fact that requesters made an honest mistake and are happy to give them a chance, if they were willing to rectify the problem. Turkers reported contacting requesters to try to clarify an instruction or help with re-design of a task.

Online and offline recommendations from friends

Getting and sharing information about turk-work with fellow turkers took place with both virtual (online) and real (offline) friends. Friends shared information about HITs with good money and bonuses. This information was seen as reliable and trustworthy as it came from a person turkers were closely associated with, or had common ground with. Between friends or members of the family, this was generally pre-emptive: they informed each other of work, regardless of whether the turkers were actively looking for work or not.

> Sapna, a part-time turker, said in a skype interview: "Sometimes when I reach home at 9'o clock and my cousin calls up and tells me that there is a work you can accept it now and right now you do it [..] If I get a good HIT or if I learn that a good requester with a generous amount of bonus, so we (she and her cousin) skype or call each other and sometimes they are online on skype also." (transcribed)

Between friends, the key information exchanged was generally the requester's name and pay or bonus amount; since they knew each other's' preferences, the tasks referred were likely to be perfectly suitable to them. Moreover, most turkers preferred to do their own research after the key information was passed on.

> Bala, a full-time turker, said in a skype interview: “in the office, we created accounts one after the other.. so we stay in touch and share information. There are 8-9 friends I know through facebook who are listed in my phone contacts too, out of which there are 3 close friends from my previous workplace.[..]We mostly call each other and say there is so and so job, have a look, it has location in India so I ll open and see if its an easy task or is it really tough. [..] If I am offline they ll inform me through calls. If online, its via gtalk. [..]But once they say something about a task I wont ask them for details I ll have a look myself, they ll just tell me the name of the requester.” (transcribed)

There was a difference between referring individual and bulk HITs: if it was an individual HIT it was highly probable that by the time the turker got to it, the task might have been taken; batch HITs were more likely to stay on the market, since they were in large numbers, for turkers to have a go at them. Although turkers informed each other of work, it was only useful when the reference was about batch HITs or those with a long completion time, Bharat explains why.

> Bharat, a full-time turker, said in a phone interview: “For Bulk HITs .. only take a long time to complete. He posts lots of HITs then after getting a call from him then we can able to do the HITs. If it’s a one single HIT means when I login I see “no more HITs available”.” (transcribed)

Turkers used both synchronous and asynchronous forms of interaction to get information about recently posted jobs. This was a path to social interaction for some turkers, who relied on their network of friends to find work, but if they were not a part of a social network then the other source for them was generally social media. Turkers looked through their emails or searched social media forums and groups. They updated their knowledge via Facebook groups, email notifications, chat clients and mturk related online forums.

> Mansoor, a full-time turker, during an observational study: “We share HITs with each other. Then we post here to show other members. Like surveys – mturk friends group. Some friends post here, so I search from here. Surveys are in dollars - $1, $2.” (translated from Hindi)

Many Indian turkers were members of several Facebook groups dedicated to turking, where they picked up and shared information about requesters and tasks with good money and bonuses with the rest of the members. Turkers then used their judgement and preferences to decide if they wanted to give the task a try after going through the publicly posted information.

With all this social information sharing going on between turkers, there were still a handful who worked in isolation, like Guna, who did not use any forums. He does not know anyone else who works on AMT and is not looking to make any social connections either. He only contacts requesters for clarifications or further information, but his interactions are limited to that. Similarly, Sumita used Turker Nation when she was learning how to turk several years ago, for information about requesters, but after she became comfortable with using AMT, she stopped visiting the site and searched for work on her own. She admits that she was not aware of any other turk-community platforms, as she did not feel the need to use them.

> Sumita, a stay-at-home mother from Gujarat, told us in a phone interview: "till now I haven't ventured out to know about workers [..] Initially in 2010-11, I was interacting through turkernation (TN) something, but now I am not. Nowadays I am searching myself, whatever I am getting, I am doing it. Used TN just to see what feedback [..] Then I got used to.. myself I slowly slowly.. the HITs I want to work, then I stopped using TN." (transcribed)

5.6.2. Discovery pathways

Turkers used some key sources when looking for tasks, which were based external to AMT. Due to the bare bones structure of AMT, finding a *suitable* task through AMT alone was not the most efficient method for workers. Adding to that was the reliability of information posted or found through social channels. Those turkers who used external sources went through them in their own organised, if not sequential order. Some turkers used multiple sources, such as turkopticon, turk forums, Facebook groups, and personal contacts. They collated information they found, and went through each to see what worked for them using factors mentioned in section 5.1, some had only one or two preferred information source(s) such as turker-friends or Facebook groups, while a handful of turkers were isolated, and were comfortable in searching for work by themselves without any external help.

These were not the same as triggers for work or characteristics of work; and workers moved from one source to the next if they did not receive a favourable response from one source. The Fig. 30 is a collated order of information sources for workers.

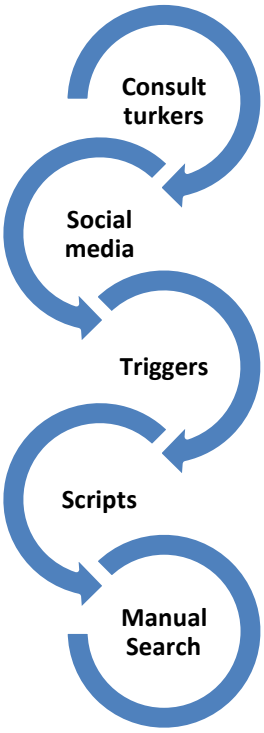


Figure 30: The discovery pathways (sources) of workers

Most turkers' primary device of work was either a PC or a laptop, hence they searched for work on it. Some turkers used multiple devices: a PC, smartphone and a laptop. Some workers searched for work on their mobile or smart phones, either because it was their primary device of work, or they found it convenient to browse for work on their phone, when they were not 'setup' or ready to work.

> Sapna, a part-time turker, said in a skype interview: "If there is a HIT which has a sufficient amount of time given i.e. 24 hours or 2 days .. [..] So normally I accept those HITs and keep it and after I come back home I do those HITs. I check on my mobile phone only." (transcribed)

Turkers then evaluated whether a job was worth their time or not by assessing it against a number of criteria explained in the section 5.5.1. These sources have been described in this section.

Consult turkers

Turkers looked for information from fellow-turkers as they found it more reliable. Almost all turkers who were a part of a network of turkers would consult their friends

and colleagues first to see if they know of any job that has been posted on AMT recently. Turkers communicated with other turkers by means of mobile phones, internet chat clients, phone calls and in person.

In senior-junior turker relationships, turkers shared not only tips and tricks of turking, but also the names of requesters with the junior turkers they were mentoring, based on the juniors preferences and abilities. Junior turkers, and turkers paying for a personal coach, felt indebted towards their mentors, and would constantly stay in touch with them and report of their work status to them. This continued either until they became as smart and confident as their mentors and did not need their support anymore, or their personal circumstances changed and they stopped turking.

> Salman, a part-time turker said in an in-person interview: "I don't search a lot. I don't give it a lot of importance. If there is any work then Mansoor would call and inform me, or online on skype or facebook. I don't search much, if there is work, I just get right to it. [..] Mail alerts from turkalert. they are up to date, mostly." (translated from Hindi)

However, the seniors followed something akin to the Pareto principle, where they gave away a lot of information but kept some that they deemed private. This information held privately could include private requesters, qualification tests and high-paying tasks. They considered themselves as a professional or competent turkers, with multiple qualifications and some private requesters, who had better chances of winning jobs than their counterparts. If turkers also worked as turk coaches, they only shared information with those turkers who they thought would not fuel competition.

> Rafiq, a full-time turker, said in a skype interview: "everything I share with them. I know it was a competitor to me. But see I am thinking that I have crossed the breakeven point in the mturk. The requesters I have, these turkers, doesn't have those kind of requesters."

Most turkers who were either seniors or personal coaches had high confidence in themselves. There were also only a limited number (even if in thousands) of jobs a turker could get access to, even with qualifications, so turkers displayed no concerns about sharing jobs with their fellow or junior turkers. (transcribed)

Social media

Turkers searched for work through their preferred online sources, such as mturkforum, Turkopticon and Facebook based groups for AMT as shown in section 5.5.1.2.



Figure 31: Facebook group post about work

The information posted generally contained requester name, job type and pay for the HITs, sometimes if the task or the requester had an issue, the post turned into a thread where turkers discussed their experiences. However, for the majority of the time, the posts remained inert, and turkers quietly looked at the information akin to a 'catalogue' or directory and used it, without interacting with the turker who posted the information. Amongst Indian turkers Facebook groups such as mturk friends and mturk alerts were very popular. Some turkers reported creating a Facebook account after they had starting working online, to seek friends or get more advice.

Turkers reported using Turkernation, YouTube and Turk Alert at early stages in turking when they were learning how to turk, but they no longer used these actively. Some turkers were banned from Tukernation; others found that the information on mturkforum was more up-to-date and interactive. YouTube was generally used as a tutorial service and a how-to guide, while Turk Alert was used to set up alerts for the jobs they liked. Some turkers found that they had limited time or technology (internet bandwidth and mobile phone) to access social media and so spent their resources on turking instead of social media. A few turkers thought the information available on social media was subjective and opinion-based and was not the same across the board for every turker, and so, they refrained from using these sites and used their own methods of testing and verification.

> Barun, a part-time turker, said in a phone interview: "It (Turkopticon) gives some four ratings to specific customers. Again that is if some turker has updated the status then only able to view that. Its nothing but mturk is considering updating those details in the HIT itself. If I am not satisfied with the customer I can go and update some negative stuff about the customer, on that requester. But its not going to help the problem. If mturk is going to research this and update some scoring pattern based around the overall HITs – who is the best customer, requester then that's a good one. If I ve done something wrong or if Iam not happy with the mark of the requester, the requester is going to reject the HIT but that doesn't mean that the requester is wrong on this point, so. Because even at the initial phase when I used to use turkopticon (TO).

> Then some requesters that I feel good about have negative remark, for low scores like 1 or 2. So it happens." (transcribed)

An opinion quite a few long-term, full-time turkers shared, that they found the requester information provided to be biased or not entirely accurate. Different turkers and requesters had different expectations, and consequently TO was also seen as a space for turkers to vent out and express their dissatisfaction. Such turkers would be likely trust a reputation system that was an internal to AMT, created and managed by it; which graded requesters based on their overall quality of work and their conduct on AMT as requesters, and which was part-automated and not purely opinion-based.

Triggers

As explained in section 5.1.2, receiving information about work through triggers such as emails from Turk Alert, a social media post, or calls or messages from private requesters or fellow turkers led to turkers finding some work to do, and these triggers were based on availability of work. The moment at which turkers received this information depended on the source. For example, Turk Alert would send an email out the moment a requester posted a task and by the time the turker got to see that email the work would already be available on AMT to other turkers. Unless the turkers received email notifications on their phones or constantly checked their emails, the might not be able to utilise these emails at every instance. On forums, the task information was available on a first-see-first-get basis. Communication from private requesters generally came in advance of them posting the work, which allowed turkers to anticipate and put time aside for the work. Through private channels of friends and colleagues, there was a higher chance of getting access, especially, to batch HITs, as they generally worked at similar times.

External tools: Plug-ins and scripts

Indian turkers did not use many plug-ins or scripts to *find* or *search* for work but employed quite a few to help them speed up tasks and work more efficiently, it was observed that most of the scripts were being used for administrative purposes. We did not find turkers employing the use of scripts to actually work on the tasks, i.e., 'do'

turk-work. It is likely that Indian turkers were not proficient in coding such scripts themselves, and could not find scripts online. It could also be the case that if the scripts did exist and were being used in the community, they were probably circulating in closed circles, since it was (vaguely) against the AMT regulations to use external tools for work.

Private requesters

'Private requesters' or 'Clients' were those requesters who built and maintained a pool of 'quality turkers' and employed only out of this pool when they had work to be carried out. The private requesters would contact the pooled turkers prior to uploading new tasks on AMT to ensure that they were available to work on these tasks once they were uploaded. Private requesters communicated with the turkers via email, AMT messaging service or phone, yet most of the work still remained on the platform. In most cases, one of these: the actual work, communication or payment - took place outside AMT, based on agreements between turkers and requesters. The basis of such relationships included requesters liking the quality of work produced by the turker as well as, the sincerity in work shown by them. The quality of work was generally a factor of accuracy, creativity and communication; accuracy being the most important of the lot. Turkers who worked full-time, and relied on AMT to pay a salary found it important to find requesters and maintain a relationship with them. Turkers who found such requesters felt proud of having found them, and felt 'in demand'. Having a private requester was seen as an accomplishment in the turk-world. It showed that a requester trusted and respected a turker's work and did not have to compete with a crowd for that work. In practicality, it also meant that while other turkers had to toil to search for steady work, turkers with private requesters received work easily, without having to manually search for work; and these turkers generally had the freedom of completing the work at their own convenience (with in the requesters' limits). Turkers could do a couple of batch HITs or well-paying individual tasks on the side too.

> Rafiq, a full-time turker, said in a skype interview: "some requesters has called to my mobile and speak to me also [..] Datamatic research - it was a twitter company, they were doing operations on the twitter. Everytime he puts batch, he asks my availability time then only he put the batch to me only [..] he was very happy with my accuracy and quality that everytime he

> uploaded a batch, he will just allow me only. 'Take your time. I know it takes time to do only one person on 2000 – 3000 HITs, but I need quality that's why I am giving you'." (transcribed)

On the other side of the coin were turkers like Elango, a part-time turker. When describing the work situation that he typically encountered on AMT, he found that much of the well-paying tasks, of the kind that he liked to work on, were private jobs - only "invitees" could work on them. He had not been able to secure work with those requesters, now they were "by invitation only", and so he did not get to work on them (see Fig. 27).

On rare occasions turkers contacted the requesters they had worked for at an earlier time, or found interesting, asking for work and offering their services, in the hope of acquiring work from them. Some turkers also introduced their friends and co-workers to private requesters if they were certain that their friends would produce satisfactory work for the requester, and if they felt there was enough work in the pool for all of them. Some of these requesters where regular, which meant, they had work to offer every few months but some were irregular – so they used AMT for a few weeks or months, then left the platform once their job was done. The transient and short-lived nature of work on AMT made it difficult to maintain any worker-requester relationships.

Manual Search

By using the options provided for filtering on the AMT website, the job of 'searching' was carried out manually by the workers. The time spent on 'searching' varied and depended on various motives, as explained in Chapter 4. Although it was possible to shortlist tasks based on a few criteria, turkers still had to evaluate them to see if they were worth doing. Turkers were not paid for the time spent on searching, yet all of the turkers we spoke to took it for granted as part and parcel of crowdwork and the marketplace, and did not mention having issues with the practice or apparatus of a manual search.

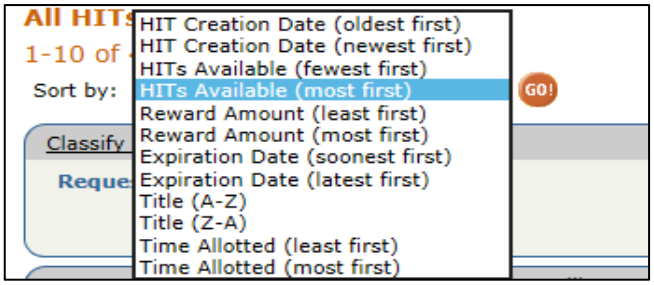


Figure 32: AMT built-in filter options

Turkers who were not dependent on AMT for money, had the luxury of searching for a 'suitable' task for as long as they wanted. One turker was observed to spend almost 20 minutes to find a task he liked (a task based on testing a game app). Although some complained that the kind of jobs they preferred did not come that often anymore so they had to spend longer looking. Rohan, a part-time turker explains his search method.

> Rohan, a part-time turker, said in a phone interview: "When I login, I see the "HITs available to you", I work on HITs available there. I then select the "most reward" option, so high-paying tasks come forward. No other special criteria in looking for work. I spend only 10 mins per day in searching for a task, I don't have to take a lot of effort to search. I find everything easily. some requester names –Employment Research, Andrew something for article-based tasks. I work on Oscar Smith tasks if I don't find anything else interesting. No one in particular for surveys. I look at the HITs available and go through them to find surveys." (part-transcribed, part-translated from Hindi)

Turkers used different methods to find work on turk using a manual search: including searching using keywords for tasks they liked such as 'survey', searching based on 'subject' of the task, looking for tasks they had previously saved or bookmarked, searching for the names of requesters they remember, or simply go for HITs they can see on the AMT dashboard. Some turkers discovered different ways of saving requester or work-related information (see section 5.3.6). Turkers tried to pick jobs that were 'easy' for them. Here Elango gives us his impression of easy jobs; which were simple and straightforward for him, as well as, satisfied criteria from section 5.6.1.

> Elango, a part-time turker, during a walkthrough exercise: "As soon as I login I search for work by determining whats the easiest for me.[..] Some of this work is very easy (he types Google in the search area and brings up a list of Google-search based HITs) .[..] you saw survey. For photo work, we type 'photo' in the search bar that's enough, and if we want video

> work, we type 'video' – related work will come up. These are easy for us. And if none of these, then here its given "HITs created date" – select new HITs, select for which you are qualified – give that, its enough – we ll get all HITs, we can read them and decide which one we want to do." (translated from Tamil)

A few turkers reported saving details of requesters in an excel sheet, but this excel sheet was not found to be a method consistently followed, i.e. excel sheets were not maintained regularly and were disused after a period of time. Turkers also reported occasionally referring back to details shared with turker friends in the history of chat clients such as Gchat or Skype.

A few turkers found inequality in the pricing of tasks during their search through the online sources – mostly when consulting forums, as Ratish states.

> Ratish, a part-time turker, said in a skype interview: "I don't know it exactly – but I see only work that is less than $5 in my page, I don't know if its common, but US, UK and all there is $ 38 and $69, posted some works, but in India, the maximum what I can see is $5.. maybe $7, less than $10." (transcribed)

Turkers believed these inequalities were real, and built into the system, but did not know the exact reason for it. They did not want to raise an alarm by enquiring about what they've seen or heard, lest they be barred from working on the site; but they discussed and informed each other of such pricing differences within their own circles of turkers.

5.7. Do task

Executing a task followed somewhat of a procedure. There was the sequential order required by the platform and then there was the order followed by the workers based on turkers skills and situation. This section provides a breakdown of 'doing' the task step by step. Besides 'actually working' on a task, turking encapsulated the activities of searching, assessing and calculating the 'right' task, which have been explained in the sections before. Working on a task also meant that turkers had to manage their way around contingencies, with almost no immediate, real-time guidance from the platform or the requester. We see how the 'actual work' was carried and some of the common contingencies in this section.

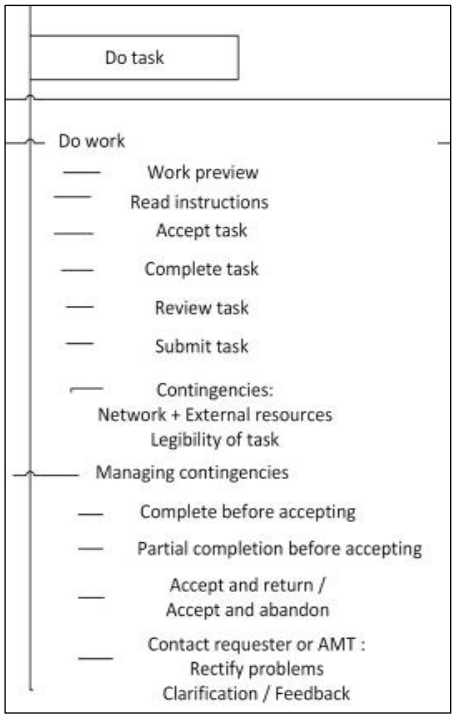


Figure 33: Attributes: Doing the work

5.7.1. Work the task

This is the core of turking – the aspect of crowdwork for which workers get paid. All the calculation and preparation lead turkers to this stage, although it is clear that the 'actual work' is only a tiny portion of the job of turking.

5.7.1.1. Work preview

Turkers read the title of a task and then looked at the HIT preview to see if they were familiar with it or not. They would look at 1) its appearance 2) how interesting it was, and decided if it looked *doable* or not. Turkers followed these actions when they had to look for new work (work from a new requester) or to verify if it was the same work they had done sometime ago. Looking at the task appearance gave them the chance to give the 'task type' a quick look – to see if it was a survey, an image tagging task, for instance, and, to ascertain whether it was their favourite type of task and they would like doing it. Turkers' preference for HITs was also motivated by the functionality and appearance of the HIT. Preview showed the number of fields to be filled, 'how many'

of instructions there were to read, the language (for legibility and understandability) in the task. If a turker felt there was too much information to read and they were not in a mood for it, they would not read the instructions, skip the task or return to it for later. If the task was new and unfamiliar, turkers took in an overview of the task and read through the first few lines of information to decide if it was worth going through the rest of it.

> Pandit, a part-time turker, during an observational study: "I know the instructions. I remember the HITs. "Does the site have a shopping cart or not?" I have worked on a similar HIT for a different requester though." (translated from Tamil)

The preview also gave turkers an idea of the resources they might be needing for a task, allowing them to decide if they wanted to tie up their internet for it. For example, in an image-based task turkers looked for how many images there were, or was there any URL or attachment given which will require a large bandwidth to download the contact. 2G internet users could not afford to work on these as this would mean their device might freeze or hang in trying to download the content.

Turkers also looked for tasks that seemed thought-provoking and attention-grabbing in some ways and found tasks based on their preferences for work and varied skillset. Workers spent time matching the work requirement to the skills they had; in a typical office environment, this matching of skill and requirement would have been the job of a manager or superior (with the help of the employee), whereas here the responsibility fell on the individual turkers. Previewing of a task generally led to turkers reading the instructions and looking at the task design to decide suitability.

5.7.1.2. Read instructions

As discussed in earlier, turkers read instructions given in a task before working on it. This exercise took them one step closer to completing the task. Legibility of the instructions was fundamental to understanding what was required of them. If the preview showed a task that did not look very familiar, turkers would read the instructions step by step, to determine if they understood what was required of them and if they had the ability (skills) and the resources (infrastructure) to complete the task. If they found the instructions comprehensible, had the resources and liked the

task, they decided to work on it (subject to other criteria being acceptable: time, price, qualifications etc). If not, they looked for the next potential task.

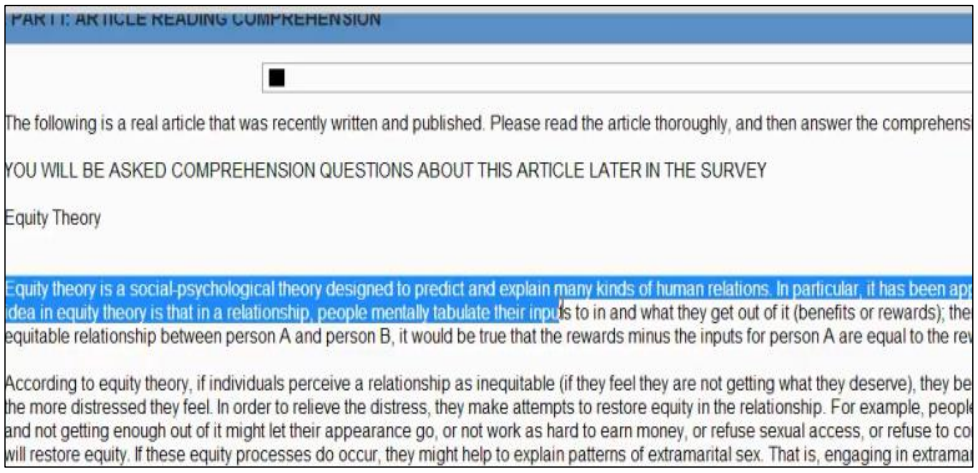


Figure 34: Worker highlights (and reads out) text after task preview

Being able to understand what was required of a turker was considered a skill. Highly skilled turkers with a good grasp of English and the context of the task gave the instructions one detailed read, quickly, before beginning the actual execution of the task, even if the task seemed familiar. Turkers with a limited grasp of English sometimes hurried to complete a task without reading the instructions thoroughly if the task looked familiar. If they were uncertain of the task, they were seen to read and re-read instructions before deciding if they could handle the task, and even during task execution as shown by the 'Google Search' example at the beginning of this chapter. This practice also highlighted their onscreen reading skills: highly-skilled turkers read the instructions by following the text with their eyes, whereas low-skilled turkers had to highlight the text given, read it out or follow it with the cursor, their finger or an object such as a pen. Turking also tested turkers digital skills. Many turkers did not have the need to use a computer or access the internet (other than checking their emails or Facebook) regularly before they started turking. Turking was a catalyst in some turkers' lives that led them to learn more about the web and its resources. For instance, Raaga learnt to use Google translate to understand English instructions using translations to her native language Tamil.

> Raaga, a part-time turker, said during a walkthrough exercise: "I have used Google translate a lot to learn the meanings of English words to work. For paragraph writing, some surveys have

> certain questions that I can't understand, so I would put them in google translate and then answer them. Sometimes its enough, sometimes it isn't." (translated from Tamil)

Generally, turkers picked tasks based on their abilities, but when they picked a task that was beyond their comprehension, they wanted to contact the requester – to get direct and accurate clarification from them. The result was a hit and miss – some requesters responded with clarifications, some did not. Turkers attributed this to 1) requesters being busy as they have other things to do, 2) requesters receiving too many questions from other turkers and 3) requesters not caring enough to respond. Knowing other turkers, whether physically collocated or not, provided turkers with the opportunity to consult with them, and come to a consensus as to what the instructions meant and what actions the turker should take.

> Bala, a full-time turker and new mother from South India, said in a skype interview: "After seeing the instructions if I find I can understand or learn them only then do I choose to take up the task. If I don't get it completely then I just omit that.[..] They give examples on how to do the work and so if you look at them you would understand rightaway." (transcribed)

Sometimes the instructions in the preview seemed easy and logical, but while entering the task they were presented with contingencies such as when presented with 'further instructions', which had a different style of language or the text in the actual task was illegible, turkers had to resort to one of the measures to handle the situation as will be explained in the section 5.7.2.1.

5.7.1.3. Accept task

This is officially the final point, where turkers have the opportunity to 'not take up the task', without any damage. Once turkers decided that they could comprehend the instructions they clicked on the button 'Accept' to accept a task, implying that they were happy to take up the task. At this point the timer began to countdown and turkers needed to finish the task quickly yet accurately. Turkers could see the number of assignments (in case of a batch HIT) available to them when they preview work. For batch work, the tasks were usually in hundreds or thousands, and so turkers clicked on the button 'automatically accept the next task', when they started to work on the 'first task of the lot', which saved them time from clicking on the 'accept' button for every single assignment. This was almost universal. At this point turkers had to complete the

task they had accepted unless they faced a contingency that was unavoidable, as can be seen in section 5.7.2.

5.7.1.4. Complete task

At this stage the 'actual work', the execution of the job, is carried out. Turkers worked on a variety of tasks that required varied degree of mental effort and skills. Each task had its own method of work and its own complexity. Some of the types of work available on the platform AMT are: digitizing forms and business cards, checking working hyperlinks, finding email address, checking online business details, finding out specific information for requesters, image categorization tasks, audio clip transcriptions, image sorting and filtering tasks, surveys of various subjects, article and product review writing, amongst others.

Depending on the complexity of the task, instructions were not only presented at the beginning of the task but also in between them. For complex tasks, the instructions seen before accepting the HIT were generally an 'overview' of what needed to be done. The instructions within the task were sometimes formal - a continuation of what was found in the initial instruction set. There were also informal 'further' instructions, akin to hints and tips, aimed at resolving 'uncertainties' regarding work, that were nonetheless important to complete the task accurately. Workers had to carefully execute each instruction within the time frame given for the job.

The design of the HIT varied too: e.g., 1) a simple form-based HIT with all instructions and response fields on the same HIT page, 2) instructions and response fields on the HIT page whereas actual work to be carried out is on an external link provided within the HIT 3) HITs with embedded objects such as graphics / images, audio, video to be worked upon, and so on.

Some turkers had installed (multiple) scripts or plugins to help them with their execution of work. This help was either to speed up the pace in moving from one HIT to another or to complete the current HIT faster. These tools started working automatically, and were integrated either into the platform or the browser. For instance, there is 'autopager', a plug-in that loads the next page automatically, removing the need to click on the next page button.

Turkers also reported the feeling of compulsion to continuously 'monitor' jobs and look at various sources mentioned in section 5.6.2. AMT has integrated in their personal lives.

> Luke, a full-time turker, said in an in-person interview: "I cannot sleep a day without turk. Fully addicted. Even if its Saturday also I work atleast 6 – 7 HITs. I have to. I cannot sleep without this. Even Sunday." (transcribed)

When turking felt like a chore, turkers switched to doing something else as short or momentary interruptions to relieve themselves of the monotony and get the focus back on doing a task again. This usually happened when they worked on batch HITs and were either tired or bored of repeating the same actions, or when they worked on tasks just for the sake of getting their task or approval numbers up. These interruptions were spent on activities that took very little time, such as checking one's email quickly, checking AMT dashboard quickly, making a call to a friend, checking social media feeds, checking if the family needs anything, or watching or listening to a song on the radio or YouTube. Individual HITs such as a survey or a study demanded more attention and time, than Batch HITs, so turkers took short breaks mostly during batch HIT work. Turkers applied strategies to stay interested in the work they were doing, and each turker found their own way to disengage and reengage with work – for instance, Bala would go take care of her baby for sometime and then return to turking, while Pranav would listen to a song or watch a video clip on YouTube.

This was also a matter of speed and the stage at which these turkers were in their career. Turkers who did not work on Batch HITs with speed got bored of the work more easily than those who worked on Batch HITs with full concentration and great speed. Part-time, less serious turkers switched between different types of tasks often to stay interested in work and escape boredom. Full time turkers were only seen to break when they were very tired, were called upon by family or an external interruption came in e.g. a phone call. Interestingly, turkers' speed of completing a task was based on their motivation and dependence on AMT for money and work, and not technological solutions. With decent internet connection of 2G or 3G data, a serious highly-motivated full-time turker could work on an Oscar Smith task in less than 40 seconds, whereas a part-time turker might take between 5 and 6 mins to complete the same task. The opposite was also true. Turkers found turking more interesting because there was available the option of working on quite a few different kinds of jobs.

> Bala, a full-time turker and new mother from South India, said in a skype interview: "I am very much interested in doing this work. Day by day, we work on different kinds of tasks. So daily if it's the same job you might be bored, you might feel pressured or something. But since we do different-different tasks, it is very interesting and different (unique) and I like that very much. [..] Sometimes we are doing tag, survey, writing articles, some finding email address and contact name, phone number etc so many jobs are there." (transcribed)

The repeated practice of working on certain tasks turned them into specialists of sorts. This in turn led turkers to actively look for work of certain types more than other task types. Part-time turkers generally multitasked; coupled turking with reading or social networking or studying, but also kept an eye out on jobs and were on the trigger to switch to turking with full concentration if a good job came up.

> Ratish, a part-time turker, said in a skype interview: "I am doing so many things, I might be chatting with friends. Or studying, or researching on my subject or areas I am interested in – photography and I am planning to start a business here, so I spend time on that. So along with that if any HITs comes which feels very interested and the money is there I will go for it.[..] there is a lot of overlap happening because I am not paying fully attention on this. I am doing it with some other works, but I am doing it." (transcribed)

What gave some turkers advantage was their keyboard skills and short-cuts such QWERTY and ctrl+C & V as well as knowledge of simple scripts and plug-ins as explained in section 5.3.6. Data processing tasks, image annotation tasks and so on, depended on skilful use of the keyboard and mouse, and hence being able to use them with accuracy and skill became the key difference between a competent, skilled and unskilled worker.

5.7.1.5. Review task

Although this is not an official AMT stage in task completion, turkers generally allowed some time to review tasks. When working on batch HITs, full-time and career turkers generally did not pause to look at each and every piece of information they filled in on the HIT page. Instead they reviewed their task with sweeping look, for instance, to see if they completed all the mandatory fields. Alternatively, turkers who were part-time or did not have a very high score felt the need to go through their work thoroughly before submitting it, due to the fear of rejection. This thoroughness meant turkers went over each word, text, image, or selection (from amongst multiple options) to ensure that they were happy with the choices they made. Turkers who were not very

confident in their contextual understanding of tasks had to verify their input before submitting the task. The job of reviewing added to the time they spent on a HIT. Turkers wanted to make sure that the job they submit would be the best or most accurate response, so as to avoid rejection of work. In a conventional job, they could have shown their work to a colleague who had been doing the job longer than them to verify if 'it was alright', or worked under someone else's (more experienced or knowledgeable) supervision.

Many turkers felt a moral responsibility towards providing good work, they felt they were contributing to something important and made sure they did their best. Others felt good that someone cared for their opinions, hence reviewing was a must, whether momentary, brief or detailed. At this stage, turkers could make changes to their responses, but right after this the task was 'submitted' for approval, the task could not be undone.

5.7.1.6. Submit task

Once turkers were confident about the quality of the work they had produced they clicked on the 'submit' button, for the approval of requesters. The result of the submission was either "Approved" or "Rejected". There was a waiting period before they could see the result of what happened to the work they submitted. Many turkers had installed the 'auto-approval' plugin and so could anticipate approval times of the requester. Turkers took waiting overnight for granted, due to the difference in timezones between India and US. Any more than a few days got the turkers irritated and pensive. The next steps in this matter have been described in detail in section 5.5. Turkers generally took no AMT-related action if the work was approved, except for personal actions such as: 1) rejoice in the decision 2) save requester information for future 3) mark them as good requester 4) share work story or requester information with a turker or non-turker friend.

The reactions to approved work varied on the complexity of the work. If the job was easy, such as finding an email address or clicking on a link to verify if it worked or not, turkers did not anticipate the possibility of a negative result and hence felt 'normal' or that it was 'no big deal' when receiving an approval – as they had

confidence in their work being correct. If the task was difficult, or had some level of complexity for the turker, they felt 'relieved' when the job got approved. This also affirmed their understanding of the task. Some turkers felt proud of themselves and shared the story of the task with their friends or online. Occasionally, when requesters awarded turkers with qualifications due to good work, they would send them an email confirming their qualification and pre-inform them of any future work. Sometimes turkers also received emails containing appreciation, for example, a bonus or 'a thank you for a great job, will you work for us again?' message, which made the turkers feel appreciated and good about the work they were doing. The feedback also showed career / serious turkers that requesters were actually monitoring their work, and not just auto-approving it, which meant they cared about the work they posted – which was sign of a good requester.

After submitting a task, if they did not move to the next one rightaway, turkers would go to their account pages to see the number of jobs accepted or rejected and to get a general overview of the status of work they have been doing. Turkers had installed scripts that calculated their scores based on HITs pending approval, giving them estimates of what to expect.

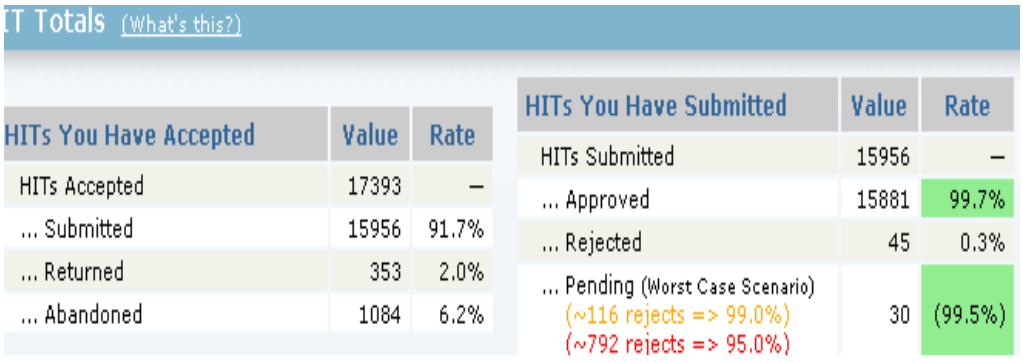


Figure 35: Pending HITs calculator

If not working, turkers spent time creating records and monitoring work or went to turk-related forums to either read about what has been going on, or to make a contribution with information or opinion.

5.7.2. Contingencies:

Successful turking was contingent on the design and legibility of the task, the responsibility of which mainly fell on the requesters, in case of AMT. Due to the bare bones structure of AMT and a lack of key functionality on the platform, it was not very surprising to see that turking was highly contingent work. Finding the right job was hard work and needed multiple factors to come together simultaneously at the right time, e.g., availability of jobs went hand in hand with availability of technological resources and a skilled worker. This section explains the key contingencies workers had to work around to 'do' a task of crowdwork.

Qualifications, availability and doability

Section 5.6.1.1 describes primary characteristics that workers looked for in a job, which included qualifications and personal skills of a worker. The turkers could work on a job if the 'suitability' criteria match, but first these preferred tasks have to be 'available'[36] on the platform. Based on these, turkers picked a task and assessed them to see if it was 'doable' (see section 5.7.1). Sapna's example describes what her preferred HIT was, and that the availability of such work has changed over time, making her to 'diversify and expand' from her preferred work into the kind of work she does now.

> Sapna, a part-time turker, said in a skype interview: "Nowadays I put 'survey' and search but very rarely do I get a survey that I can work on [..] Earlier also I used to do surveys, but I used to do research surveys very less. But nowadays we don't get any work so when I am there online, so I have to search for work. So basically I search for these topics – surveys, bonus or games." (transcribed)

Unless *suitable* HITs were available at the time when workers are logged on to AMT, or alternatively, they had the ability to log on immediately when work became 'available', they would not be able to work on the task. Hence, although crowdwork is supposed to be 'flexible', it is only as flexible as your 'next available *suitable* HIT'; and this was provided workers had the qualification in place to do the work, all of which highlights the temporary and unpredictable nature of crowdwork.

[36] Sections 5.3.2 – 5 determine 'availability' of work.

Legibility of the task

The design of a HIT and instructions were paramount to turking. Turkers found errors in task design such as missing or broken links, missing or non-functioning data fields, incoherent or conflicting instructions, which probably existed because requesters or developers had not tested the HITs to see how they would appear to a turker. Turkers spent time in trying to understand what was missing or wrong with it which frustrated them, or made them do additional work of contacting the requester as we saw in section 5.5.

> Sumita, a stay-at-home mother from Gujarat, told us in a phone interview: "sometimes, the requester gives the link, when you open the link it shows that the survey is already closed. [..] Sometimes we don't get the completion code, then we cannot understand, we spent so much time – 1 hour, and wasted our time and we are not getting the code, then how are we going to submit the survey." (transcribed)

Turkers had to work on tasks and prepare for it based on their resources and the task design. For example, turkers using 2G data on portable datacards and modems were not able to work on tasks that required heavy data usage to download images and large-sized files, limiting them to working on text-based tasks or cutting it too close to completion time.

> Luke, a full-time turker, said in an in-person interview: "I had 2G plan but it was difficult. Like Oscar Smith (OS) projects you can work on. It's a little slow, uploading, downloading will be slow. Then we cannot watch movies etc. Only – you can browse or facebook, gmail [..] Netmsi is fully porn. Actually their work is tagging. [..] Once you accept the HIT, it will take 2 – 3 mins to load because of quantity. [..] they ll give only 10 mins. Within 10 mins you have to finish there is no other (way) .. Sometimes my net was slow when I was working, so I told (asked the requester) – 'Please 5 more mins, loading takes time for me." (transcribed)

Another issue to consider was that of trust; turkers wanted to be able to trust the requester. Apart from completion times, pricing of a task and other characteristics described in section 5.6.1.1, the confidence in a requester was established by looking at the HIT they posted, if it was easy to understand and work on, the requester probably tried to make it so. As the example below illustrates, instructions and description played a significant role in this. Pandit read the instructions given on the HIT, and believed he could work on the task. He clicks on the survey link and the task opens into a comprehension page that leads to a survey.

> Pandit, a part-time turker, during an observational study: “I don’t think I can do this work. Lets give next and see, should be alright. [..] Very very hard (when answering the 1st question of the survey). Ok that’s it. I cant do it anymore. Now I have summarize it? cant do it. This is too much. Have only completed 4% in the part 2 Article reading comprehension. There is definitely a lot more.” (translated from Tamil)

He reads few lines of the text, starts feeling unsure, but decides to go to the next page to see what’s on there. He starts doing the survey and realizes that he needs to have read the previous page with the text and understood it.

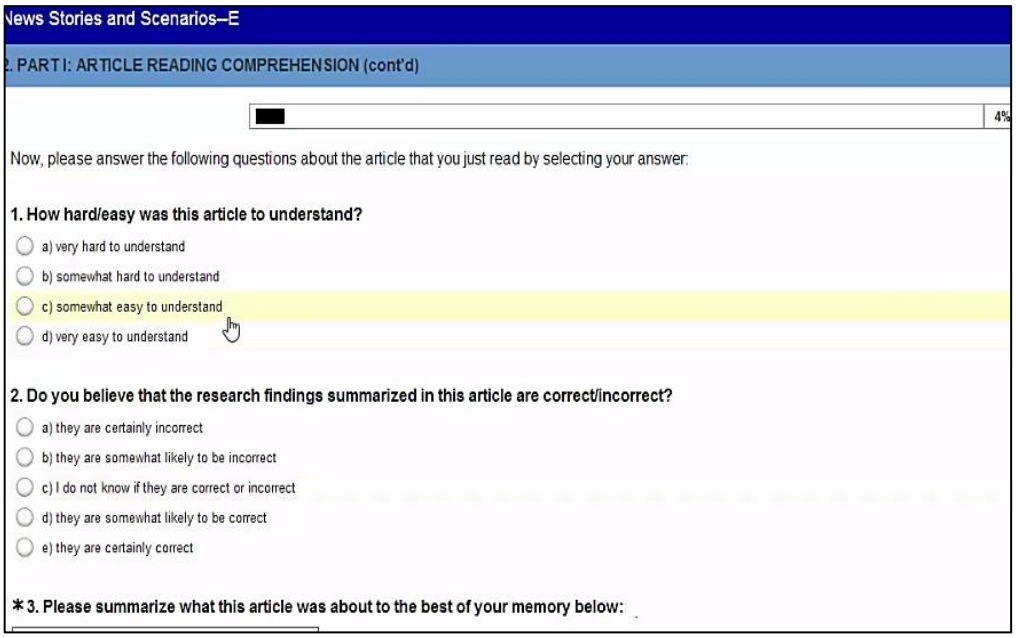


Figure 36: Survey part of Pandit’s attempt at a survey

As a result, he goes back and starts reading, and finds that although he can understand the words written in English, he is not able to grasp the context and the subject it is trying to address, which makes the task beyond his level of comprehension. The task opens into an article reading and comprehension task and provides generic information about a survey, and rights as a survey participant, and payments.

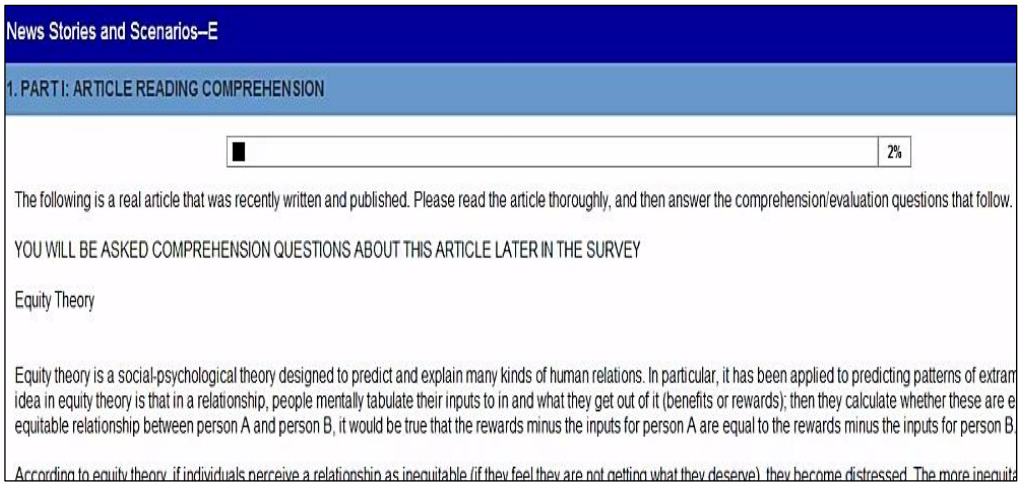


Figure 37: First part of Pandit's task: article reading

However, there is not enough detail specific to the given task and the 'work' required, which meant Pandit had to reconsider his decision. If he had already accepted the task, reconsidering his decision would have come at the cost of penalties to his account, which directly conflicts with the statement provided on the survey "you may refuse to participate or withdraw from the study at any time" that ensures participants are not penalized for withdrawing from the study.

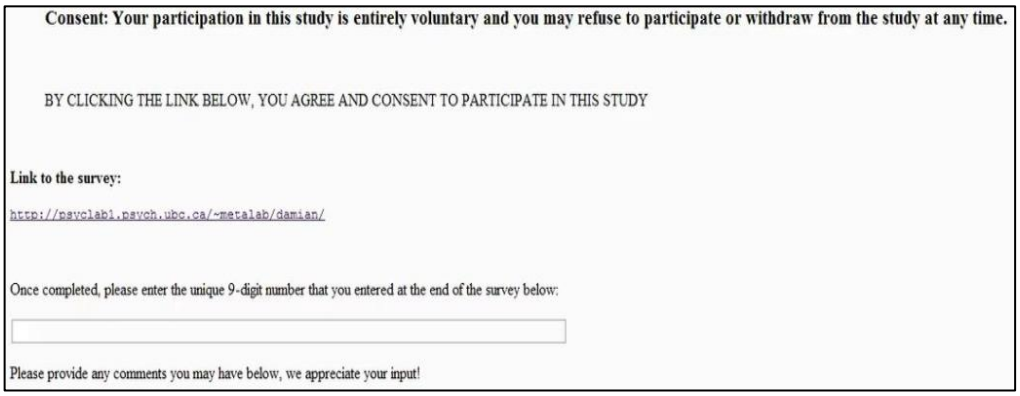
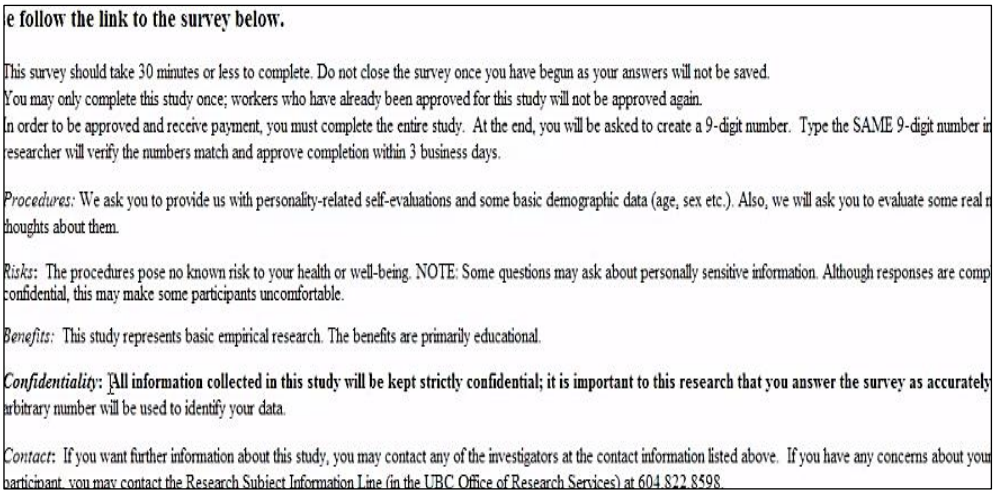


Figure 38: First part of Pandit's survey tasks instructions



e follow the link to the survey below.

This survey should take 30 minutes or less to complete. Do not close the survey once you have begun as your answers will not be saved.
You may only complete this study once; workers who have already been approved for this study will not be approved again.
In order to be approved and receive payment, you must complete the entire study. At the end, you will be asked to create a 9-digit number. Type the SAME 9-digit number in
researcher will verify the numbers match and approve completion within 3 business days.

Procedures: We ask you to provide us with personality-related self-evaluations and some basic demographic data (age, sex etc.). Also, we will ask you to evaluate some real r
thoughts about them.

Risks: The procedures pose no known risk to your health or well-being. NOTE: Some questions may ask about personally sensitive information. Although responses are comp
confidential, this may make some participants uncomfortable.

Benefits: This study represents basic empirical research. The benefits are primarily educational.

***Confidentiality*: All information collected in this study will be kept strictly confidential; it is important to this research that you answer the survey as accurately**
arbitrary number will be used to identify your data.

Contact: If you want further information about this study, you may contact any of the investigators at the contact information listed above. If you have any concerns about your
participant, you may contact the Research Subject Information Line (in the UBC Office of Research Services) at 604.822.8598.

Figure 39: Second part of Pandit's survey tasks instructions

Some turkers had also faced requesters who were gaming the system, rejecting perfectly good work, possibly to avoid paying a fee to Amazon without really caring about the consequences for the turkers. Rafiq points out that some requesters change their name and come back onto AMT asking for the same job to be done, recognized by the turkers from the familiarity of the task design and instructions.

> Rafiq, a full-time turker, said in a skype interview: "Another 200 change HITs rejected from the Spiral lab, the same work which I am doing earlier, the same I was doing that batch. But I came to know that that batch was the last batch from the requester and the requester was not willing to pay that batch because of that thought more than 200 HITs were rejected. Because the requester doesn't want to come again. If he wants to come again, he will come with another name, not with the same name, with which he rejected. Risk is from our side only. 60 – 70 % risk is from our sides." (transcribed)

Turkers were vulnerable to fraud and more at risk than requesters, as there is no system to weed out the requesters except to name them on the online forums or report them to AMT, which might still not stop them from coming back onto AMT with a different name, and scam the workers.

Network, Electricity and other external resources

Turkers resources came to be dependent largely on their need for turking and their geographic location and, subsequently, their place of dwelling, as well as, their individual or family's socio-economic status. Turkers living in large cities and metro

areas got easy access to the internet and computer accessories and hardware, whereas turkers living in suburban and rural areas found it hard to find good and reliable internet and good machines.

The most important resources that got affected were: electricity, phone, broadband or fibre optic and 3G network. This meant that the workers had to arrange for back-up devices or create strategies to deal with the unreliability of their resources. The reactions to the unavailability and unreliability were varied – for career or serious turkers it was important to carry on turking without external interruptions, however, part-time and sporadic turkers generally took it easy. If they had a resource issue, they would stop turking till the resource became available again.

> Bharat, a full-time turker, said in a phone interview: "Sometimes I have some difficulties in my net connection and I have to contact Reliance customer care and they are solving my problems. Sometimes there is no tower / range, at that time I contact them." (transcribed)

On top of this turkers occasionally had to manage issues with their devices: laptops, PCs, phones and other devices that required hardware or software updates. These updates took time, which led to interruptions, and which in turn meant loss of precious turk-time. Turkers tried their best to use resources at work, study, or friends' place or when they were mobile to make use of time or to relieve themselves of any worry. However, there were limitations on access due to various reasons, for example, at educational institutions students were not allowed to access social media or external websites and any sites that were not related to their studies were blocked.

Screenshots (below) taken during Pandit's work session showed that he had to work with constant interruptions due to poor infrastructure.

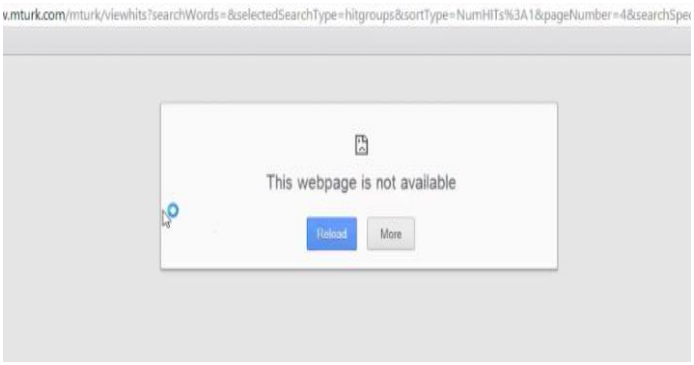


Figure 40: Pandit's AMT stopped loading, due to loss of internet

The page has not loaded during a search for work on AMT, he refreshes the page, when that does not work, he disconnects and reconnects his laptop with the wifi, and tries again.

Power cuts are common in semi-urban, suburban and rural areas; generally, this was due to load shedding because of shortage of power in the local areas, precautionary measures to safeguard against bad weather, and in some places, simply due to lack of basic infrastructure. Maintenance work for transformers, electricity poles, road-works, sewage-works and so on, led to disruptions. In some places ample notice was given by the concerned local service departments regarding the disruptions, allowing turkers to prepare themselves for the situation, in others, turkers had to handle the situation when the contingency came about.

> Bharat, a full-time turker, said in a phone interview: "Now it is power gone (there is power cut at his place). Lot of power problems nowadays. This month daily 9 hours power cut. You are lucky, you are there.
> (In the background he lights a candle/lamp with a match.) 3 to 4 months before, like this power cut. After this solved the problem, now again it comes. There is a power failure in Toothukudi power plant. So this problem continues." (transcribed)

When broadband and phone cables were physically disconnected or damaged due to the repair and maintenance work. A handful of turkers also had an inverter - a battery-powered power back-up equipment for the home.

> Rafiq, a full-time turker, said in a skype interview: "you came to know there are lots of issues going around in Andhra Pradesh, so I have a back-up with UPS and inverters. Inverters will back-up upto 4 hours – fan, light, 2 computers, other lights in other rooms." (transcribed)

Serious turkers generally found that it was more economic to have a multiple back-up devices than to wait for their resource to re-start functioning again as they could make up for the cost of the back-up by working for a few hours.

> Rafiq, a full-time turker, said in a skype interview: "If wirenet (broadband) – maybe in your area some issues will come like cutting of the wires (broadband cables) – if those issues come at night so I don't stop my work and continue with my work with datacards (3G portable modem). They are ready to replace for the wirenet. They are not useful for the whole month, might be for 1 or 2 days they ll be useful and I am paying 1000 Rupees for that 1 or 2 days because that 1000 / 2000 for net is not important to me because at the same time I can get that 1000 / 2000 Rupees back with 1-hour of working so I don't want to lose that 1 or 2 hours." (transcribed)

Part-time turkers, on the other hand, tolerated the interruptions and waited for infrastructure to be restored back to normalcy to continue working.

5.7.3. Managing contingencies

Turkers had to face different kinds of contingencies during turk-work as explained in section 5.7.2. With experience and constant trial and error, they had learnt to navigate around these contingencies using resources, application of skill or both. They were also driven by the fear of losing their access to the marketplace, Losing their account and losing out on a good personal score which would mean that they would not be able to work on good tasks. We see some of the steps turkers had to take in order for them to take a task to its completion.

Full or partial completion before accepting task

Turkers with limited confidence in English and digital literacy skills wanted to avoid rejections. One of the ways to do this was to partially or fully complete a task before hitting on the 'accept' button for the task. For instance, for the survey task chosen by Pandit in Figures 36-40, he would have actually worked on the entire survey, retrieved the code at the end, copied it somewhere or wrote it down and then clicked on the 'Accept' HIT button.

> Pandit, a part-time turker, during an observational study: "what I do is.. the way I do these HITs, survey HITs is – since sometimes I don't get the survey code, I open and work on the survey without actually accepting it." (translated from Tamil)

The danger of such actions was that while a worker was working on the actual task on an external link, the actual HIT gets picked ('accepted') by another worker, which meant that all of their effort was wasted. Turkers took such measures as they were unsure of their own capabilities and do not want work to get rejected.

Return or abandon HITs

If the HITs were too long, or not right in some way and turkers did not want to contact the requester or AMT, they would abandon or return it. This showed up on the worker account page. The workers preferred having these numbers as close to zero as possible, as part-time turkers and brothers, Sarath and Saran explain in a skype interview

> Sarath: "Return.. mostly.. (the HITs) I don't want to. I will return the HIT on that time. Saran: Not only bad, but if we don't understand (the instructions) clearly, we don't want to do that HIT. If we do that with some unknowing information, we ll lose the HIT percentage. Sarath: Myself I return the 228 HITs out of 4000 HITs." (transcribed)

The danger of hitting the 'return' button or abandoning a HIT harmed the workers' reputation indirectly as the requester could block the workers, under the assumption that their work was untrustworthy or unsatisfactory.

Contact requester or AMT

Turkers tried to contact requesters for clarification or help, if something went wrong during work or if their work was rejected. If turkers believed the matter had not been resolved, they could then take the matter to AMT. However, with AMT, getting the appropriate response was not always guaranteed. In general though, workers from India were concerned about being punished and banned from the market for speaking out. They were happy to give their contact details such as email address, phone number, contacts on Facebook or other social media sites to show their faith in requesters. Anonymity was not an issue for the workers, and waiving it to keep their accounts and get a requester to communicate with them, was a common occurrence (see section 5.5.2).

Attitudes to task workarounds

During the study one turker admitted to scoring work based on finding loopholes and weakness in the instructions and design of tasks. This section provides two examples of his ingenuity. He works as per the instructions provided, and ensures that he

answers all the assessment questions correctly. In the first instance, he had worked on translation tasks and translated text into languages that he did not know using a translator tool; since the requester had not explicitly said: 'don't use a translator'; where they explicitly gave this instruction, he refrained from picking those tasks. In the second instance, he worked on a survey as a woman, since there was no way of verifying if the worker responding was a man or a woman.

> Aman, a part-time turker, said in a skype interview: So they (US) need Chinese language, German, Spanish, Dutch and I don't know about this language and I just use my browser and translator tool that's why I am earning freely with these tools. if requesters said that don't use the translator tool, then I didn't work. If they said that they just need translation then I know the translator tool that providing good translation. [..] Many surveys are right now are woman surveys, about women. They need a woman worker to work on them. But I work on them, like fake survey, so I complete the survey and they approved my task. They just ask me about woman matlab (as in) how she love, how she romantic partners so I just click on options, individually options, and their result. (transcribed)

He does not explicitly explain why he does that. From his tone – where he chuckles while narrating the story – it was possible that he liked being playful and saw answering surveys by imitating a different sample to be a game. It is possible that in his mind, although he did not meet the survey requirement officially, he does not feel he did anything wrong as he followed all the instructions and answered the questions to the best of his knowledge and understanding. He found these loopholes to just be another way to get access to work; if he did not find work of his liking, he would work on HITs that may or may not be entirely and directly suitable to him. The turker also confessed to playing, and then being played and punished by requesters owing to his actions above, although we cannot say if the rejection was a revenge-based action or simply 'incorrect' or poor quality work.

> "Aman, a part-time turker, said in a skype interview: One of my favourite requester [..] actually he provide tasks that I have to search a song in itune then I just have to give the link to him. [..] So I completed many tasks like 2000 – 3000 tasks of him and I get a lot of money for him. They just pay me $0.03 for each. Actually I have given a wrong work to him and because he didn't check much work and I use my smartness. I gave the usual same links for all the tasks. And even he don't know that I do this and he approved all the tasks. And after that he knew that I did wrong and he block me from mturk. Then I request him 'sir, please give me work again. I will do good work again. So he again gave me work. I completed many task, 1000 – 2000 tasks again then I completed perfect work with the right links, everything is right. [..] He take a revenge that he reject my all work. even he didn't reply to me." (transcribed)

Turkers generally did not approve of those who worked using these loopholes, and wanted AMT to tighten the security of the system. The few turkers who understood what research meant, felt that tasks such as research studies and surveys could have data that could be used on them later in life and so did not want the data in it to be falsified (see section 5.3.5 Nidhi's example). Some turkers felt that such turkers spoilt the name of the entire worker community, whether deliberately or playfully, and should change their ways, as it affected the market as a whole, especially workers who genuinely depended on the platform for work and money and were serious about turking.

> "Rafiq, a full-time turker, said in a skype interview: suppose there are 5 – 6 fields (in a form), the requester asked us to do. In 5 – 6 fields there are only 2 mandatory fields. [..] I recently came to know, some bad turkers what they are doing is – they are giving the spam data in these two fields, the repeated data. [..] they (some turkers) are misleading the auto-approval system. [..] Sometimes I feel that if Indians keep on giving low-quality work someday it might be that mturk will feel that we are not getting good quality work from the Indian Turkers, they will remove the options from the India also. I fear about that one." (transcribed)

Turkers themselves did not like other turkers being duplicitous. They also wanted requesters to be more accountable towards the work they posted; in order for turkers to see that they were serious about their work.

5.7.4. Wrap up work

'Wrapping up' work marked the end of a work session. This section elaborates on the activities that took place as a part of this wrapping up such as reordering the workspace digitally and physically, as well as describing what brought on the end of a work session such as fatigue or boredom.

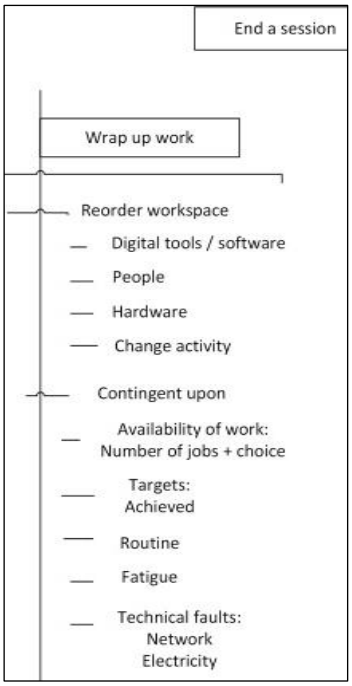


Figure 41: Wrapping up work: attributes

Change activity

Young turkers (under 30 years old) usually continued turking late into the night, middle-aged turkers had familial obligations or personal work to take care of, and thus switched their activities from turking to doing something else; therefore marking the end of a turk session, but not the end of the day. Sometimes if workers got fatigued or bored or ran into technological failures, they would switch to doing something entertaining or relaxing such as listening to music, catching a movie, playing a game or talking to (or chatting with) with a friend, colleague, or family member.

Turkers would engage in a few minutes of 'getting a view of the field' i.e., looking at their accounts to see what the work session was like, what they did and could potentially earn their approval rates. They would also check their emails and forums for any new work that might be coming up in the next few hours. They followed activities described in section 5.5. as a way of summing their work session up.

Reorder workspace

At the end of a work session, turkers reordered their workspace, similar to any conventional job. They would close their browser and any other program running on their device, as well as log out of the accounts they had logged into at the beginning of the session – for example Facebook, AMT, email etc. If they had a dedicated room or area set as workspace, they switched off their computers, broadband routers, UPS and any other computing device. The also switched off any device connected to an electrical socket, which was a common practice, to avoid unwanted electricity bills or damage from electrical surges. Since work almost always ended late at night around midnight, lights and fans also had to be switched off. Workers with dedicated rooms could simply leave the room, and those with laptops carried it either with them to their place of sleep or left them in the common living area. Young turkers carried their mobile or smart phones with them, while the older turkers left them in the common area or living room, which had a dedicated table or shelf to keep their phones.

People

Turkers' family members, spouse or parents, in most cases enquired before they turned in for the day 'are you still working?', 'how long are you going to work for, do you want me to make you something?' If the turker did not need anything, they would wish each other goodnight, while the other family member turned in, and they continued turking. If turkers felt bored or fatigued, at the call of 'how long will you work', they might decide to stop working and switch their activity to something restful or entertaining, or simply go along with the person. If turkers were in touch with their colleagues online, they would bid adieu to them for the day as well, and discuss personal plans before switching or ending their session, or stop turking because their colleague was going to stop as well.

5.7.4.1. Dependencies

Similar to triggers that occasioned work, turkers carried on with it until they reached one of the following limits. Their work was contingent upon either setting in of

fatigue, boredom, following a routine or inability to work further due to a technical or technological issue.

Routine

If turkers followed a standard routine for work every day, they logged on and off at certain times, this was especially true for part-time workers, who had a different day job, were students or housewives. They had to end their session at set times, so that they could continue with their daily routines at the start of their day, which was more important to them than turking. Full-time turkers, those who were serious about turking or addicted to it, would try to stretch their sessions till they got bored or too tired to continue to sit and work.

Fatigue or Boredom

Full-time, serious turkers generally ended a work session when they felt mentally and physically fatigued, or bored due to doing monotonous batch work. Bala, a full-time turker, worked on a variety of jobs; when choosing work she alternates one type of work with another, and so, she does not have to work on the same type of task every day. The variety in jobs is a distinguishing feature for her. She feels that if she had to work on the same type of task everyday she might easily get disinterested.

> "Bala, a full-time turker and new mother from South India, said in a skype interview: a requester called "kronopin" (pay $0.03 per task) who put such HITs in bulk where you had to find out the number of employees of some companies on LinkedIn. [..] For e.g. if they are uploading 50,000 HITs one day – if they upload it tonight it is bound to available till the next night. Kronopin is my favourite requester also, so I wont avoid the job, I wont ignore the tasks, will take them up – and so if I work on these tasks continuously 24 hours, the last 2 – 3 hours of the work I feel slightly bored. [..] yesterday I did some 800 HITs." (transcribed)

However, to earn her income, Bala had to work on the same type of task repeatedly, for hours together. She felt mentally exhausted after working continuously for a few hours, but since the requester posted about 50,000 HITs she was willing to compromise on the monotony factor to earn some money.

> Aman, a part-time turker, said in a skype interview: "some of the audio transcription tasks. They are too much long and with less pay like $0.50 for 20-30 mins (of work). So often I try to work on them, that (thinking that) I can easily work. But when is going.. going.. going..(i.e. it goes on too long) I didn't understand; it feels boring so I reject that task – I have the option to return the task, then I returned it." (transcribed)

Some turkers preferred to return the task rather than waste time working on a task they did not care much for, or that was too long or boring, especially if the requester was not paying enough. But most of the times, when turkers started to physically feel fatigued, they would end the session.

> Rahim, a full-time turker, during an observational study: "I feel pain, then I stop. Back pain. Sometimes we get backpain. because sometimes we sit continuously for 6 hrs, we don't even take time to get out." (part-transcribed, part-translated from Hindi)

Common signs of fatigue included having a backache, watery eyes or pain in the eye, or losing concentration on the job. Generally, turkers' ending of sessions depended on a combination of factors – routine, fatigue, family members calling on them and so on.

Targets achieved

Turkers with targets for daily income would end a session when they achieved their target or 'were nearly there'. They could also set a number for batch HITs for a session or a day, like Bala explains above she worked on 800 HITs from a batch. When such work targets were achieved, and together with fatigue or boredom, turkers quit turking for the day.

Technical faults

The factors explained in the contingencies section 5.7.2 such as unplanned power cuts and loss of internet could put a stop to the job. Turkers living in large metro cities generally had constant access to power and 3G data; in smaller cities, towns and villages, power cuts and data outages were more common, leaving people with no choice but to stop work.

5.8. Managing payments

Prior to 2009, AMT paid its international workers (non-US) through Amazon gift cards, which could not be shared or gifted, and could only be used to purchase goods from the Amazon.com (the US site). Turkers found the gift cards to be of little value and, generally, waited for them to accrue for a long time before buying an item from the US. In 2009, AMT started paying the Indian workers by cheques, allowing them to get money in their own currency (Indian Rupee / INR), which was an important factor that led to the growth of AMT in India. During the research period of this PhD in 2013, turkers were receiving payments in the form of cheques. This section describes how the payment process was organized, the issues turkers faced and their solutions to these issues in real time.

Turkers could start withdrawing money after they had earned their first $4 on AMT. Turkers deduced that the earning of $4 gave AMT a chance to verify a turker via their personal information and official documents. After the verification, every withdrawal incurred a fee of $4, so turkers figured that the account was set at $4 minimum so that AMT had the necessary money to process and post the cheque to the turkers.

5.8.1. Getting paid by cheques

Perhaps due to the mode of payment, as well as due to the insecurities related with the worker account, getting paid was not an easy task. Figure 42 explains the process of 'getting paid'. It began with deciding or knowing that it was time to 'withdraw' or take some money out of the AMT account. If turkers had not set a predetermined income withdrawal value, they would decide upon an 'amount' or a sum based on their current needs. In either case they would check their accounts to make sure there was enough money in the account; enough so that once the money was withdrawn, there was not too much left that might be lost if their account got suspended. With the click of a few buttons, turkers were able to request for the amount they wanted to withdraw. Once they confirmed the amount, AMT sent them an automated email with the confirmation that their withdrawal request was being processed, and provided details such as, the transaction ID, the processing fee, the total amount deducted from

the account in US dollars, the total amount in the cheque in US dollars, date and time of the withdrawal process initiation, and finally the mailing address to which the cheque will be sent to. The next email from AMT was of the exchange rate to INR, and the total converted INR amount on the cheque.

Once a turker received these two emails, the wait began for the cheques to arrive. Depending on a worker's geographic location, this wait could be short or long. Short wait meant an average of 7 – 14 days since the withdrawal process was initiated. Turkers were generally mindful of national and international public holidays and accounted for these days in their 'waiting for cheque' period.

The clearance of cheques also took time, depending on where one lived. In a big city such as Mumbai or Bangalore, cheques got processed quickly. In smaller cities or villages, cheque clearance took time, as they were sent by post to the city to the main branch of the bank for clearance. The bank branches itself may not be in the same locality as where the workers lived, so they might have had to travel some distance before they could deposit a cheque, which meant that it turned into a full-day affair with queuing at the bank and making the deposit.

> Sarath & Saran ,part-time turkers and brother, said in a skype interview**:** "It will take around the 15 – 20 days time. After 3 days we get the mail like your dollars will be converted into the rupee. After that 1 week or 10 days we ll get the cheque to my home. After that bank transaction be going on. It will take 5 – 10 days.. min. 5 days. If holidays is there. [..] Bank is not closeby, it is not far. It is around 5 kms."

Turkers then withdrew cash for their expenditure as their local economy ran on hard cash. It was also a common practice to hand over earnings to the elders or the home-manager (wife, mother or father) of the family for the purpose of personal or family expenditures when living with family. Turkers managed their money such that they saved some for themselves, gave the rest away to the family.

Ratish works part time on AMT and recently earned Rupees 5000. He spent some of it on himself, some for household expenses and gave Rupees 1000 to his mother.

> Ratish, a part-time turker, said in a skype interview: "I gave Rupees 1000 to my mom. [..] So I told her, I given to her, because dad is doing all the things "This is for you"." (transcribed)

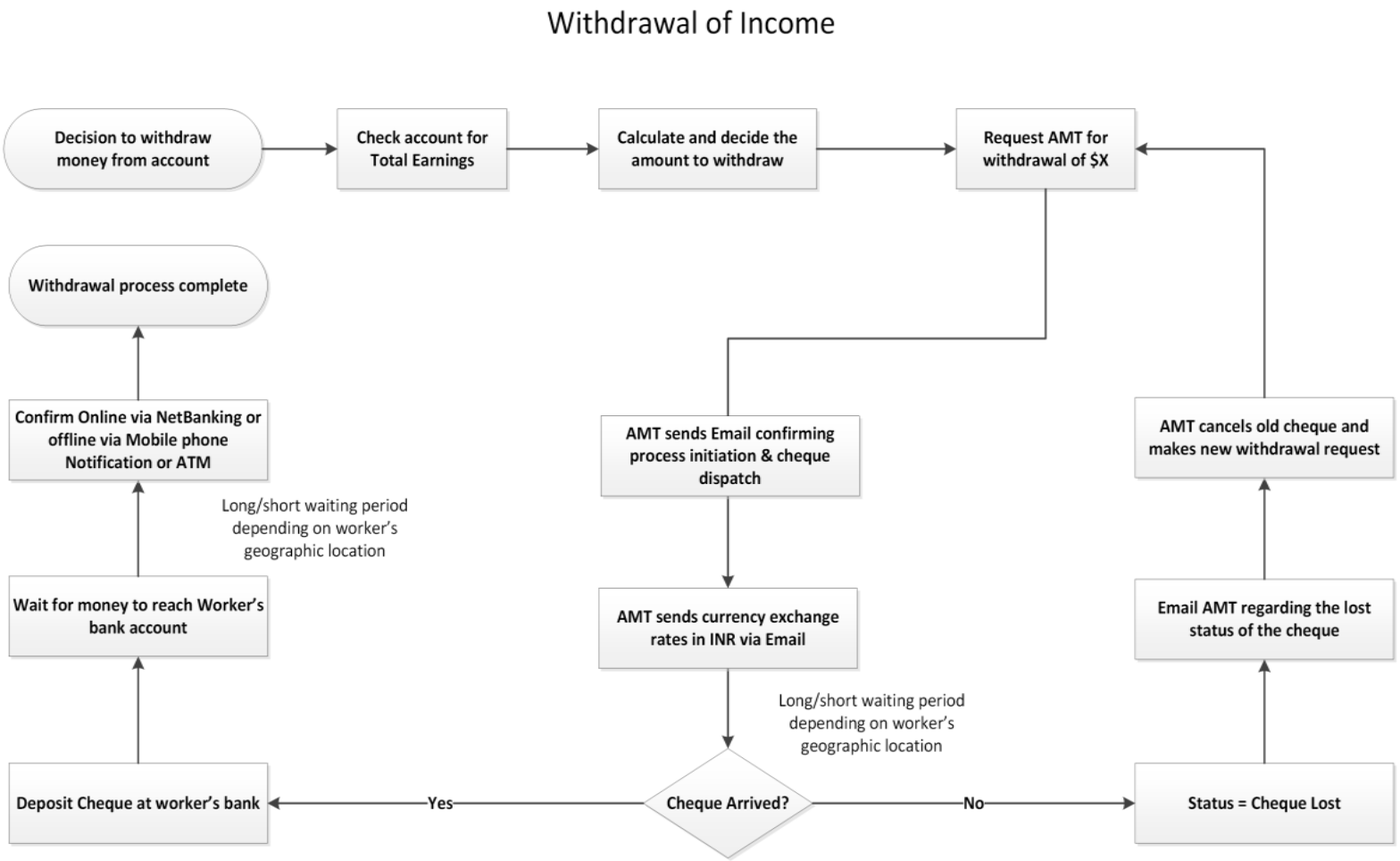


Figure 42: Flow diagram of 'withdrawal of income'

In India, it was also common practice to share bank accounts and ATM card details between family members or close friends, as the money remained in the family pot, at the disposal of the entire family.

> NG: "Where do you spend this money you earn from mturk? Bharat, a full-time turker, said in a phone interview: I am giving it to my father. I gave the ATM card to my father, after the amount is credited, take the money. I ask him "I want this much money" and he gives it to me. [..] Last week we went to tour – Ooty. Once in 4 – 5 months we went to tour; at that time I ask my father to give me the money and he gives me." (transcribed)

Many turkers reported such instances where they paid tuition for a sibling, handed money to their parents or spouses, or let it accrue. Bringing money home was a part of their familial obligation, which turking afforded them while working from home. Like a job usually does, turking earned turkers their families' respect. In Aman's case (and other similar cases), it also discounted him from doing chores that he would be doing if he was not employed or earning.

> Aman, a part-time turker, said in a skype interview: "They just didn't disturb me about this. I can work anytime in the day. They know that I am working and I am earning money. [..] I don't want to work for the home things. We are the family like brothers, no sisters, so mum is alone to work, so me and my brother are always helping. My papa is always help my brother to make food. So I don't need to work that things." (transcribed)

Other ways in which turkers spent their money has been detailed in section 4.2.

5.8.2. Income Withdrawing patterns

Most turkers withdrew small amounts either for the fear of losing their accounts, and subsequently any money in it; or because they did not earn large sums. However, some did take out large sums - turkers who worked regularly and earned well, but had a different primary source of income generally worked and let the money accrue; then took out large deposits when they needed to make a purchase, instead of multiple tiny sums.

The transfer of money from AMT to one's bank account (or pocket) required work, sometimes detailed planning and execution, on the part of the turkers, as

explained in the section above. Turkers had expectations of how much they could make from turking over a period of time, and so, established certain thresholds for themselves and withdrew money every time their earnings crossed said thresholds. A few turkers even looked at the exchange rates before deciding to take the money out, to get the best value for their money. Turkers, generally those working full-time, withdrew regular amounts of money periodically (at regular intervals) say, every 2 or 4 weeks, to establish a set routine. Drawing an income was also in part, due to the fear of losing one's account.

For instance, Luke had calculated that he made an approximate amount ($160) every 4 weeks. If there was too much money in his account, he feared that an account block or suspension would lead to forfeiture of all the hard-earned money, so he consciously withdrew money at around every $160. Some of his friends withdrew lesser amounts owing to the fear of losing one's account.

> Luke, a full-time turker, said in an in-person interview: "I usually earn $40 a week, so $160 it comes. I withdraw. After exactly 4 weeks. My target is $160. [..] We all are afraid suspending of accounts. Some reason they ll say and suspend. $150 – how much its worth – we know. 6 – 7 hrs per day. If it goes useless. So that's the reason we draw. There are people who withdraw $80. Even they wont keep it long. First time I withdrew $250 one of my friends told – no ,should not draw like that, draw like $150 - $200. If you earn like Rupees 10,000, be happy." (transcribed)

Some turkers kept their withdrawals flexible, and used AMT akin to a bank account, and withdrawing money when they needed it for a specific purpose. Many such turkers had a different primary source of income. They worked on their tasks very carefully, and did not take huge risks with new requesters or work. They also had confidence in their skills and in their understanding of the task requirements and their infrastructure, which in turn gave them the confidence in allowing large sums to accrue in their AMT accounts. This accrual also allowed turkers to set monetary targets, as this instance illustrates.

> Sapna, a part-time turker, said in a skype interview: "Last to last year in 2011, I had redeemed and I had got a good amount of, I think, Rupees 60 – 70,000 so I had used it to pay my insurance policy. [..] I (usually) withdraw a big amount." (transcribed)

The Reserve Bank of India raises red flags on deposits of Rupees 50000 (£500 / $773) and above. Most turkers who accrued huge sums reported withdrawing

less than Rupees 50,000 at a time, so that they did not have to go through scrutiny of any sort at the bank and had the option of getting the cheque deposited by a friend or family member.

5.8.3. Issues with payment

Although cheques were a great mode of payment, they were not without issues; most prominent issue was postal delays leading to lost cheques. As explained during the account creation process, there are notable differences in the requirements of address conventions between India and US, and this mismatch of conventions creates issues such as those described below:

C/o S/o in the address

It is mundane in India to write C/o (care of), S/o (son of), D/o (daughter of) in the address field for postal communication, since it is a common practice for adults to live in the same house as their parents, even after they get a job or get married. The house remains in the name of the guardian or parent, and hence, the address includes their name in the first line, and their parents' name in the second line with the relationship - S/o or D/o. In cases, where people lived away from their family homes, when staying as a paying guest/ or in a shared apartment with housemates, friends or relatives, they inserted C/o in the second line of address. AMT's address field did not allow for this practice. So turkers had to remove this field, leading to complications during postal deliveries. Excerpt from a change of address email from AMT:

> "[..] the address conforms with the following restrictions:
> - It cannot contain C/O, D/O, S/O or any similar variation.
> - It is limited to two lines of text, not inclusive of the name line or city/state/postal code line.
> - Each line must be 35 characters or less, including punctuation and spaces."

Landmark based physical descriptions in the address

India also has a complicated postal system. Indian postal system follows a PINs (postal index number) that are similar to British postcodes or American zipcodes, but the addresses are complex as they sometimes include physical description such as proximity to landmarks or roads and alleys e.g. Behind Gandhi statue, next to Asoka pillar, off Santa High road. This makes the address very long. AMT does not allow more than 35 characters in its address field – which means turkers have to make do with the bare minimum information – which is manageable during account processing but then leads to complications during cheque deliveries.

Fear of cheque thefts

In some localities, predominantly in South India, people had long names and thus were recognized by their initials, which could mean that on a postal delivery, the initials were hard to distinguish even though the address and contact details might be different. Bala shows concern over the possibility of cheques being falsely cashed because many people in a neighbourhood share the same name.

> Bala, a full-time turker, said in a skype interview: "Postal system is very unsecure here – e.g. imagine how many people live in the same locality with the same name as XYZ, that of my husband – if we lose a cheque here we have no way of recovering it. If someone else cashes in that cheque we'd be able to do nothing." (transcribed)

Local postman's discretion

In small cities and villages, where people have their own homes, deliveries are relied upon by "name" of the house-owner rather than addresses, hence a postman knows the family name, or the head of the house and delivers post based on that. If a turker is not popular in the local area, and the postman would not know him or her, and it is highly possible that cheques get lost. This issue does not really exist in cities where dwellers live in rented apartments, and addresses are more systematic, part of a planned numeric system.

> Aman, a part-time turker, said in a skype interview: “actually in my last time I ordered a second cheque. That time the postman didn’t know my name because on mturk this is a big problem that we can just mention the address in the 35 alphabets, means whole words, length is 35. So I just have to mention my name or my father name. so I put my name ‘Aman’ I didn’t mention my father name as there is no space. So the postman get the cheque and he sent back. He wrote ‘no Aman available in this city’. He didn’t try to check. I was outside of my home that time and not in my city and so, I just waiting. [..] So first I wait for 42 days then I then request that I didn’t receive my cheque, please check this. So then they again sent me cheque and then I told my postman that I am Aman.. then he told me I have sent back your cheques. So I request him that my home is there, please send me cheque there.” (transcribed)

With no way of tracking the journey of a cheque, turkers resorted to various measures. For instance, they worked on creating or maintaining a relationship with the postman, introducing themselves to them, and having casual chats with them (or simply handing them a cash tip as a gift to keep up the good work). The idea was to make the postman know you, so they’ll hand over your post safely.

Income loss due to change in exchange rates

Turkers had to wait for six weeks before taking the issue of ‘lost cheques’ with AMT or request for another cheque. This second cheque was issued according to the exchange rate on the day of the request, which meant that turkers could lose or gain money on conversion. Most turkers reported losing money due to lost cheques.

> Sumita, a stay-at-home mother from Gujarat, told us in a phone interview: “it happened with me once, I withdrew but I didn’t get my cheque so I wrote back immediately that so many days have passed and that I haven’t been received my cheque, they said you have to wait till 6 weeks and even after 6 weeks if you don’t get, then we will despatch another cheque but on the value that is going on today only we will give. The amount will differ. [..] I told its ok. I waited till 6 weeks but still I didn’t get my cheque so I wrote to them back again and said send me another cheque. [..]I got both the cheques at the same time. Maybe some postal problem in India or something, but it was not their problem. But there was a huge difference – around Rupees 400 – Rupees 500 rupees I lost.” (transcribed)

The turkers lose a lot of time and peace of mind in writing and contacting AMT for lost cheques. It also causes them anxiety for the long periods of wait before the money finally reaches them.

5.8.4. Turkers' workarounds for payments

Turkers catered to the US conventions of postal address leading to the failure in the Indian postal system, and in turn leading to the 'missing cheque' situation, which forced turkers to find workarounds to make the payments system work. We see some of these workarounds here.

In the instance below, Mansoor from Hyderabad, discovered that turkers living in his locality were not receiving AMT cheques, and so, following the suggestion of a turker-friend, he changed his address to a more central part of the city, which was also a commercial address. Mansoor had also built a relationship with his local bank's branch's employees, who sped-up the cheque's processing for him (or so he thought), which gave him the confidence that his money would reach him soon.

> Mansoor, a full-time turker, during an observational study: "Cheques didn't come for 7 months, we changed the address to our friend's and the cheques started arriving. In area 500005, no one was getting the cheques – my friends here included. So I asked Rahim, and he said change the address and try, so I changed the address to a college friend of mine, area pin 50**** and the cheques come there. He holds them for me. If I request for a cheque today, it ll start its journey in 4 days and will reach here in 6 – 7 days. I have Axis (Bank) account, if I put the cheque in there in the morning before 11, the cash comes in next day evening. If I do it after 11, then I get it day after tomorrow. I deposit in the evening. I have some links there too. I have made some connections in the bank so behind the cheque I write and give my account number, so he deposits it then I cash out at ATM." (translated from Hindi)

In Rafiq's case, the cheques got delivered to a different city altogether. He moved from a big metro city to a small suburban town to live with his parents in his family home, which meant the delivery of cheques took forever. He gives examples of 3 different types of cities – a metro city, a city, a suburban town; from experience and local knowledge he had come to the conclusion that the cheques get delivered quickest in a metro city. He came up with the idea of

getting the cheque delivered to a trustworthy friend's address, who lived in the metro and went to the bank and deposited Rafiq's cheque into his bank account. This workaround shortened the payment processing time by at least 7 – 23 days. It also eliminated the insecurity surrounding cheque payments and he was certain that the money will reach his bank account in 9 – 12 days, which put him in a better position than if he got his cheques delivered to his current suburban house address.

The simplest solution to turkers' cheque woes was to pay them directly via a bank transfer, which was an almost unanimous idea turkers had. Other solutions were: AMT was already charging turkers $4 as a transaction charge for the cheque service, which was very unreliable, why not pay a few dollars more to get it couriered or tracked to ensure safe delivery of cheques? AMT could have a service similar to paypal that could be connected to their bank accounts.

> Aman, a part-time turker, said in a skype interview: "If we urgently need money and our cheque stole then what we can do, we have to worry about it. If they can provide a secure method.. many companies are providing a secure method like Paypal.. so we can send and receive money.. so they charge more dollars than now then its ok. Even if they make a service like they directly send the money into our bank account. And even if they want to cut a $5, 6, 7, every worker will accept that." (transcribed)

Bala does not have the confidence that AMT would start direct bank payments and so she says that turkers should have the option of at least asking for a tracked delivered, even if charged a few dollars.

> Bala, a full-time turker and new mother from South India, said in a skype interview: "the only problem is the cheque – since it comes through post we cant track it.. we don't know where the cheque is, when we ll get it in our hands, this makes us feel very stressed, nervous and anxious until it reaches us. We are taking pains, working hard to earn money, [..]For e.g. after they ve despatched a cheque they could email us a tracking number, so over here we could keep checking where the cheque is – its here now, there now, we ll feel secure. They can give us two options express and ordinary post. They are already deducting $4 for this service – if we want it quickly or securely with tracking they could charge people more for it, for those who want more options – that wont be an issue with most people I guess.. Bank transaction is better actually but I think that's got a less chance of happening." (transcribed)

Rafiq, wants to ask AMT as to why it does not use their mobile phone numbers to send them notifications for the cheque, or in fact, for anything. Mobile notifications for banking is mandatory in India, and hence, people are used to receiving text messages from their banks on their devices on a regular basis.

> Rafiq, a full-time turker, said in a skype interview: "you are taking the mobile numbers, for what sake are you taking our mobile numbers in the address bars.. I have not ever been contacted, not ever been alerted through any kind of message that this work has been uploaded, this requester HIT was uploaded, this payment has despatched now, this payment has been received now." (transcribed)

It shows the desperation amongst turkers. They are already dealing with quite a few contingencies which do not seem to end with finding or doing work, but extend to 'getting paid' as well.

5.8.5. Current payment process (after the research study)

In February 2015, AMT changed the payment process for Indians, and now offers them choice between direct debits to their bank accounts or getting Amazon gift cards, and the cheque system has been abolished. During our study some workers said they would prefer to have a direct debit system over cheques, and since gift cards limit the way workers could spend their earnings, many turkers are likely to migrate towards a direct debit system. There will still be those who would need to first get a bank account and learn about online banking processes, which would be a separate lesson in itself. In the Future Work section 6.5, we propose a study of payment systems and processes as 'money' is a key driver of paid crowdwork and its place in the crowdsourcing ecology needs to be better understood.

5.9. Summary

This chapter makes visible the invisible and unsupported work that workers have to carry out to find and execute tasks, as well as the articulation work that goes into successfully reaching the goal of earning some money. Broadly, the

chapter also shows the sequence of activities the workers go through to perform a task, and to get paid. It also highlights the contingencies that they have to battle in order to make a living or earn small sums of money. All of which lead to some key takeaways:

- The design of the platform and the distribution of work were built on the idea that work is highly individualized and atomic. Crowdsourcing platforms like AMT were built on a many-to-many relationship for workflow; many turkers working for many requesters, but each task was worked upon by a worker individually, at a time, hence the actual flow of work for a task was one-to-one, where one turker worked for one requester for one task, yet this flow becomes complex due to the contingencies and social nature of work, which questions the existing model of 'issue and dispatch' of AMT. The work of crowdwork was found to be social, not one-to-one: calculating HIT suitability using different external sources, forums and social media sites, referring work to each other and communicating with 'private requesters' were all evidence of this fact.
- Whether it was account creation or account handling, 'one-shoe-fits-all' philosophy does not work well. Taking lessons from lost cheques due to 35 characters limitations, there should be allowances made for workers and their situations. Indians being the second largest workforce on AMT, India still does not have a dedicated 'customer service' department based in the country, which generates the need for all the consulting and backchannels with friends and colleagues.
- Crowdwork was work with heavy contingencies. Turkers had to find a balance between taking risks and trying new, complex tasks and maintaining a good HIT count, which required them to match their skills with the HIT's requirements. Turkers tested a new requester's approval time, fairness in pay, and veracity, and also, consulted with external information sources for this purpose. Requesters were also keen on finding a good workforce of genuinely interested turkers. This process of testing each other and experimenting with HITs was sophisticated, and required loads of invisible and unsupported work, for

which turkers used help from external sources, which in turn also shaped their reasoning about AMT and turking.

- The varying time zones and the geographical distance created a distance between workers and requesters. Although AMT provided enough work, work was not 'always' available. Turkers had to constantly monitor the platform and keep an eye out for jobs like a freelance or contract employee, having to search for jobs themselves and be on constant vigil, which was stressful and caused workers anxiety. The risks and insecurities attached to crowdwork were also due to the lack of accountability in the market, as there was no real-time interaction or communication between two parties, creating a power imbalance, and so, making each party sceptical of the other.
- Use of computing devices in crowdwork (to search or complete tasks) was determined partly by turkers' skills and preferences, partly by the device and partly by the situation in which they were using that device e.g. a short ride on the bus versus two hours in their room at home. Turkers typically adjusted their activities on AMT according to their current technological constraints and device usage. Turkers worked on different machines based on the devices' 1) mobility; e.g. when they were out and about they used their mobile phones to browse through available work 2) availability; e.g. when they were shared between family members or friends, or when machines were only available at certain locations like parents' home or office 3) requirements of the tasks e.g. Some turkers even used different machines for different tasks e.g. simple form-filling tasks on the mobile phone and complex text-based or image-based tasks on a computer. In general, the PC or laptop was better suited for a wider range of tasks because of screen real-estate and ease of typing. Turkers who did not have regular access to computers also used mobile phones to turk, after paying for 2G data on the phone, but due to this they were limited in the amount of tasks they could take up. Serious, professional turkers were ready with back-up systems or at least a plan on how to mitigate contingencies should they present themselves.

- Turkers discussed how ‘important’ turking was to them. They felt responsible towards the work they produced and felt that they had to give their best to the work. They went to great lengths to make sure they understood what was required of them – from reading and re-reading instructions till they understood the task, to contacting the requester or their fellow-turkers to find out if they had understood what was asked of them. The repercussions of poor quality work would be that Indian turkers may lose access to the market and get no work at all. Indians are already barred from the online forum Turkernation, and turkers are worried that soon their access to mturkforum or AMT itself might get revoked, due to a few bad turkers. Turkers also expected requesters to take responsibility, to not rely on automatic approvals, use qualification criteria, insert tests, communicate with the workers to ensure that turkers were actually paying attention to the work.

Based on the findings chapters, the next chapter examines as to what do these insights mean for design. The chapter examines some of the existing interventions in the market and literature and recommends some new ones based on the findings from this research.

6. Implications for crowdwork

6.1 Informal work in India

This thesis intends to sensitize the research community to the working conditions of this cohort and show that there is a complex bigger picture here. As to why crowdwork has been received with so much optimism in the country although the nature of the work is highly precarious? It is known that India does not have a well-defined unorganised or informal employment sector, and most of the crowdworkers of this study fall under this category. This category is more popularly known as the 'self-employed' – estimates show that anywhere around 56 per cent of all Indian workers come under this category (Harriss-White and Gooptu, 2009). A study conducted by the National Commission for Enterprises in the Unorganised Sector (NCEUS) set up in 2004, examined the issues of the informal economy. According to a comprehensive report by Wiego.org of 2005-based data, the unorganised sector consisting of agricultural workers, self-employed and other workers accounted for 395 million persons or 86 per cent of the work force. On top of this 29 million were engaged in the unorganised employment in the formal sector, making persons in the unorganised economy (sector and employ-ment combined) to be 422.6 million, comprising of 92.4 per cent of the work force in India (Weigo, 2005). These workers were found to not have written job contracts, social security (e.g. pension) or paid leave[37].

Western companies operating in India are changing the face of this sector. Although not free from issues, they are making workers more technologically savvy and educating them in more structured ways of operating. As compared to the current state of the informal economy in India, crowdworkers seem to be better off. Apart from the hope and promise it provides the workers, crowdwork affords workers to transcend boundaries of class and social structure. It affords them to participate in a market culturally and economically

[37] India's informal economy http://www.thehindu.com/opinion/columns/Chandrasekhar/indias-informal-economy/article6375902.ece

diverse than what they are used to nationally, while exposing them to larger social, commercial and labour-related discussions. Their exposure is increasing and they are connecting with the wider world, in turn, making and aspiring to make life better for themselves and their communities. Again, just because crowdsourcing brings some positive value to crowdworkers it does not mean that we advocate that workers should be exploited or that researchers stop worrying about the quality of results they get from this community of workers. For most turkers who belong to the lower wrung of the socioeconomic ladder, battling 'Indian capitalism' and 'Indian semi-feudal' systems, crowdwork empowers them in various ways and provides them with dignity of labour[38] – at least a tad bit more than what they experience at home, locally (Harriss-White and Gooptu, 2009)..

6.2 So What for Design?

This section focuses on teasing out design challenges that emerge from the study findings presented in chapters four and five.

It first considers study findings in relation to existing developments in the HCI and associated design literatures, and then moves on to elaborate distinctive design challenges that have not yet been addressed by the development community. The rich data gives us an insight into areas that can be supported by technologies that can meaningfully support crowdwork. The key challenges in doing crowdwork include:

1) supporting communication between the workers, requesters and the platform, and providing information that is necessary to make judgement calls and see the big picture

2) supporting collaboration between communities of workers and between requesters and workers

3) solving usability issues in the design of the platform and design of the tasks.

[38] Refer Section 4.2 for motives and values from crowdworking

We address these challenges via recommendations in this chapter. Before diving into the recommendations from this research, we briefly look at the other efforts made in this area.

Given the detailed ethnographic account of the 'doing' of crowdwork that has been provided in the earlier chapters and the role of ethnography in systems design and HCI in section 3.5 of the Methodology chapter, it might be curious to find a chapter in the thesis called 'implications for design', specifically so, since Dourish (2006) raises questions regarding the 'effectiveness of ethnography's contribution to HCI' with a bullet list of design implications. It is imperative to note that Dourish (2006) does not question the role of ethnography in HCI itself, which has been established over the years (Sommerville et al. 1992, Hughes et al. 1993, Crabtree et al. 2009, Crabtree et al. 2012) and summarized in section 3.5, but the role of 'implications for design' developed from out of ethnography. This thesis does not dispute Dourish's point regarding constraining ethnography by narrowing down its focus on implications for design, and laud their effort to inspire researchers to develop a focus on the 'analytic auspices' and not be driven by trying to tag on a bullet list of design implications to an ethnographic study. In this thesis, however, implications for design are relevant, or rather essential, to recapitulate the analytic lessons acquired from the accounts of the crowdworkers. This chapter serves as a standalone takeaway for those interested in creating tangible, generic interventions using design (or policy-work for that matter) to support the work of crowdwork; and it serves as a reference to the organizational features of crowdwork and the key issues members of the crowdsourcing community face, such as with communication, collaboration, usability, sense-making, trust-building and so on, allowing members of the research community, designers and policy-makers to (re-)visit the findings chapters, get a better understanding of the situation on the ground and share that knowledge across a broader community of practice, especially with those who do not have access to ethnographic expertise (Crabtree et al. 2012).

6.3 Previous design efforts

Almost all of the 'design' effort in the worker community has been undertaken by the community to support itself; to build and use tools to support some aspect of doing crowdwork such as for speeding up search for suitable work, being able to calculate payments for HITs pending approval and so on, examples and working of which are provided in detail in section 5.3.6. For instance, MTurkList[39] sorts tasks based on pay, TurkAlert[40] notifies users when certain HITs become available (most of the participants of this research heavily use this tool) and Mturkscripts[41] hosts several scripts and plugins that turkers have created to help make their work easier. Workers using platforms like Upwork and Freelancer.com used online resources to get insights from the community – predominantly Reddit and YouTube, similar to AMT.

There are also design interventions from the academic community that complement the existing design efforts by the workers, as well as serve their interests as requesters or participant observers, developed to support features like management of workflow, quality control and analysis of data. Some examples of these are: QualTurk[42] which integrates online survey tools like Qualtrics with AMT, MTurkR[43]which links statistical packages such as R to AMT for better data analysis, TurKit[44] which posts and manages iterative tasks, CrowdWeaver[45] that creates workflows for requesters to manage complex work, Turkomatic[46]which plans and solves complex jobs by recruiting workers. From the collective papers of Martin et al. (2013, 2016) that studied workers in the US, and our own papers (Gupta et al. a&b 2014) of workers in India, the authors have proposed design directions to deal with the practical side of work to create technologies that can:

(i) give better insight into communication patterns and relationships between Requesters and Turkers,

(ii) create tools that make the functioning of the market more transparent,

[39] http://www.mturklist.com/
[40] http://www.turkalert.com/
[41] http://mturkscripts.com/
[42] http://www.qualturk.com
[43] https://github.com/leeper/MTurkR
[44] http://groups.csail.mit.edu/uid/turkit
[45] Kittur et al. 2012.
[46] Kulkarni et al. 2012.

(iii) support cooperation amongst Turkers so they can work together to exert more control on the functioning of the market

(iv) 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".

Similar design recommendations are reflected in and have been picked by designers and developers in other studies. These issues play concretely in design through a variety of interventions, such as the following:

(i) Turkopticon - a reputation management system used widely by the worker community, the requesters, as well as the academia.

(ii) We are Dynamo - a campaign website where the worker community come together to voice their issues in the form of projects.

(iii) Crowd-workers - a widget with multiple functions to help with sense-making and analysis of the platform as well as support workers with basic scheduling and filtering of work.

(iv) Turkbench – a tool to help schedule and organize tasks.

(v) MTurk tracker - a platform tracking tool that provides information about worker demographics.

These are examined in detail below.

Turkopticon

The most noted of tools for the workers is a reputation management system for requesters, Turkopticon[47], created by Six Silberman and Lily Irani in 2008, whose use within the worker community has been documented in chapter 5. The system has a qualitative comment-based reviewing system and a quantitative 5-point likert scale based rating system running via a web database application and a browser extension respectively. Workers review requesters in the web application, and the browser extension aggregates the quantitative

[47] http://turkwork.differenceengines.com. Irani and Silberman 2013.

element of these reviews, for every requester individually and lists them next to HITs posted by requesters. The goal of the system is to create a more ethical environment for crowdwork, and make requesters feel more accountable.

What more, then? Design challenge(s) not previously considered:

- Workers found online forums and reputation systems to be very subjective and opinion-based[48] as seen in section 5.6.1.2. And so, workers wanted to able to contact a requester immediately, to get an answer as to why their ratings were bad at a certain point, which workers have been seen to do quite often via email or platform's internal messaging system as seen in section 5.6.1.2. An instant messaging system or a chat option to contact requesters would be very handy, alongside worker reviews.

- Workers cared about opinions of other workers and wanted to see the most current, real time information about work from their fellow workers, and currently used backchannels and external sources for that as seen in section 5.6.2. Adding a chat or IM system to aid communication between fellow workers who are online at the same time to provide instant communication[49] access would reduce the need for backchannels, as well as, maintain the sociality of work.

We are Dynamo

A project for Worker activism, Dynamo, attempts to give a platform to turkers to facilitate their own interventions and actions together, rather than relying on academic researchers and designers. They also run campaigns or projects that the worker community agrees upon e.g. Guidelines for Academic Requesters and Email campaign to Jeff Bezos.

What more, then?

[48] Silberman & Irani 2016. The paper seeks to address the issue of 'objectivity' by a design overhaul of the system that will be rolled out soon.
[49] Platforms like Leadgenius provide built-in, real time tools to communicate in real time. Upwork has been revamping its platform and has added features for real time collaboration as well.

- Workers are part of crowds that are extremely heterogeneous in nature, with no recognition or real power, working under the threat of suspension of accounts as seen in chapters 4 & 5. Platforms should afford workers to lead, nurture, guide, coordinate and bring their own local groups of workers together to form a community, virtually. This research suggests that workers are part of such communities already, offline and online, as seen in sections 4.3, 5.2, 5.3, 5.4, 5.5.2, 5.6, and so on, but the community breaks down online and has to use external tools to continue their collaboration.

Turkbench

Turkbench[50] was a tool that aimed to provide workers with personalized market visualization and session management, tried to tackle the feature of 'Qualifications', as well as, aid in finding *suitable* work by constructing adaptive schedules based on workers' speed and the level of difficulty of task. The tool hasn't been rolled out to the worker community yet, but there is no doubt that such a tool has the potential to reduce unpaid work and search.

Design challenges not previously considered:

- Scheduling should be made visible to both the workers and requesters, at least in a summary form, such as through a setting of 'worker availability' - for the next hour, next day and next week, to make work more collaborative and transparent. Currently workers and 'private requesters' have to discuss availability and schedules using external tools. In case of requesters, a setting of 'one-time', 'repeat' requester, so workers know whether to expect work from them again in the future or not. Such a 'visibility' feature would also reduce the need for both parties' sense-making efforts as seen in section 5.3.1, 5.6.2 and 5.7.2.

- A feature to filter and show tasks based on workers' various skill levels, 'levels of difficulties' with respect to 'English' or other specialist subjects like creative work or programming, would make it easier for workers to choose tasks based on such information and save

[50] Hanrahan et al. 2015.

time in going through tasks on an individual basis, and then having to return or abandon them if they were found to be beyond their skill-levels as we saw in the examples in section 5.7.2's 'legibility' sub-section.

Crowd-workers

Crowd-Workers[51] is one of the newest tools in this domain, created by Callison-Burch in 2015 to aid 'calculation' and find *suitable* work by calculating hourly wages of HITs, provide 'Preview and Accept' link to queue tasks, and, work recommendations and a searchable history of completed HITs on an individual basis. Data from this research suggests that crowdwork is social in nature, but this tool has the potential to alter the ways in which workers interact with the system, making crowdwork more 'individualized' and 'personalized', if workers adapt to the tool. It accesses workers' AMT accounts and time spent on external sources such as the forums to make these calculations. It also provides analytical features such as statistics monitoring, favourites list, alerts, and goal setting. Rolled out recently, it is currently being tested with users and replaces almost 12 individual scripts, supporting dynamic functions of crowdwork in real time.

Here are a few design challenge(s) not previously considered:

- A large population of workers spends time on backchannels that are not online forums e.g. Facebook, email, instant/text messaging, all used as external sources for looking for work as described in section 5.6.1 and 5.6.2. Where this happens, calculations about 'time spent' on external sources should account for these. For existing tools, this could take the form of a 'corrections' feature, that would not only allow for flexibility in 'calculating' time spent of any kind of work activity but also take contingencies such as infrastructure failures or breakdowns into account as mentioned in section 5.7.2.

- Another option would be to integrate a third party social media login feature built into existing tools to allow users to add time spent on

[51] Callison-Burch, C. 2014.

Facebook or email; there are advantages of this in terms of calculations and to save time spent setting up (section 5.4.3), and going to and fro between different devices or browser tabs or windows, but understandably it could also create difficulties for developers and users due to issues with users' personal data and privacy.

MTurk tracker

It is a tool[52] created and run by Panos Ipeirotis[53]and colleagues to understand the worker demographics and market dynamics on AMT. Along with the use of his blog[54], it is used to make sense of what goes on with AMT such as requester and HIT data and changes in their design or policy. The tool crawls the platform and provides detailed information on top 1000 requesters, active requesters, and incoming HITs, rewards, completion of work carried out by workers on an hourly, daily basis along with detailed demographics of users on AMT. It is a great tool for seasoned, professional turkers who want to see the bigger picture and want to understand their position in relation to the wider worker community.

What more, then? Design challenges not previously considered:

- Data from this research suggests that workers 'calculate' and try to find 'patterns' to 'predict' available and future work from information obtained in the past as seen in examples in section 5.3.7, 5.6.2 and so on. Currently, a tool for 'projections' i.e. predictions of future work doesn't exist to our knowledge. Such a tool might be interesting for workers looking at the bigger picture and those who like to set work or monetary targets for their work.

The next section provides practical recommendations supported by data from this research to support crowdwork and make the work of crowdwork easier to tackle.

[52] http://mturk-tracker.com/
[53] Difallah et al. 2015, Ipeirotis 2010.
[54] http://www.behind-the-enemy-lines.com

6.4 Design recommendations

The biggest challenge with the crowdsourcing platforms and the tools developed to support crowdwork is that they depend on treating work as fundamentally 'individual' and 'atomic' in character, whereas our research findings in chapter 4 & 5 find work to be collaborative and highly social in nature. Crowdwork involves getting introduced to the platform, collaborative learning on how to work, knowledge sharing about the work and the requesters, and even collaborative - or at least coordinated - working with their friends and families. Even when workers are distributed and working remotely, they have been found to discuss work socially. Sociality is an essential part of crowdwork. Workers give importance to building a rapport or a relationship with their requesters not only for the immediate need to understand what was required of them, but for future work prospects, relationship-building between workers and requesters, making collaboration crucial to crowdwork.

In this section we examine some of the ways in which this 'collaboration' could be supported and integrated within the workflow. The section also finds the need for 'official' tools for communication, given that the research shows the massive effort that go into backchannel communications carried out by workers. Workers spend time and effort in finding, organizing and creating a flow of work, mostly in an ad hoc manner, which isn't supported by the existing platforms, hence the need for tools as described in section 6.2. Finally, the section elaborates on what other functional improvements could be made to a crowdsourcing platform, apart from supporting collaboration and communication, so that crowdwork can become more accessible and efficient for everyone involved.

6.4.1 Communication

Simple forms of communication are an essential need for crowdwork as workers spend a massive amount of time on 'consulting' sources. Communication systems would make it easier for workers to help interact with

each other socially, while learning how to operate on the crowdsourcing platform. Most of all, the social nature of work would support workers social interactions, in turn, allowing them to stay interested in crowdwork, when things get boring or slow. Communication in the form of 'information' about the market, its participants, and 'how things work' is also required, and we make some suggestions in this regard too.

Synchronous Real time communication

Emails and platform messaging services are notorious for being slow or producing no response at all from requesters or the platform, as seen from section 5.5.2. To avoid delays or no response situations, providing a chat or IM system to aid communication between a requester and a worker, or the worker and the platform would be beneficial. To support requester, platform, payments and account related queries, 'Live Customer Service' using instant chat services or a toll-free number would be very beneficial. Such instant messaging could also support instant group communication[55] between fellow workers, reducing their need to use backchannels to communicate as seen in section 5.6.2. An integrated third party social media login built into the platform would allow workers to keep in touch with their social life, without having to 'switch' or change activities, and get 'social' simply by being able to open and run a chat / messenger window concurrent to the crowdwork. (Other features of such communication systems have been described in section 6.2. under Turkopticon and Crowd-Workers.)

Having synchronous communication features built into the platforms would help workers to contact requesters for any last-minute clarification or after a task has been rejected, allowing both parties to build trust more easily. Although real-time communication may not entirely eliminate the issues created due to workers being made invisible by the platform, it would certainly bring about the realization for communicating parties that there is a 'real person' or human-being they are communicating with, relieving the tension

55 Platforms like Leadgenius provide built-in, real time tools to chat and communicate in real time. Upwork has been revamping its platform and has added features to provide real time communication as well.

and mistrust between the workers and the requesters that is a result of each party being 'invisible' to the other.

Communicating via visualizations and video tutorials

Quite a few naïve (inexperienced, unexposed) workers who were new to using the crowdsourcing platforms and the external support tools, looked for help in learning how to use them. Workers with limited digital literacy skills (sections 4.2 & 4.3) perceived tools with multiple features and complexity, as being complicated. They used secondary channels such as free or paid personal coaches to learn how to use tools. Introductions to such tools through interactive flow diagrams, visualizations, or video tutorials would cross language barriers, make the tools far-reaching and more effective, supporting the learning curve of the workers and reducing dependency on backchannels.

Setting 'task profiles' and a portfolio system for requesters

There should be more information provided about the job as well as the requester on the platform, as we see in sections 5.3.7, 5.6, and so on, a great amount of time and effort is spent on 'calculations' and 'figuring out' the right job and the right requester. Workers need to be able to tell which requesters are new or returning, see requester profile and history. A setting of 'More/other jobs' to see other current or upcoming tasks posted by requesters would make a requester's history visible, brows-able, and search-able. Workers should be able to flag tasks as invitation-only (such as for surveys or studies), and store personal opinions, notes or feedback about a job or a requester to make searching through tasks easier. Hence, an extended profile generated by the platform, for tasks as well as requesters is needed, which would eliminate 'manual' figuring out and allow workers to spend more time on 'actual' work. (Other features of such task profiles have been described in section 6.2. under Turkbench.)

Currently workers use multiple tools to make sense of requesters, their reliability, work posting patterns, the task, etc. A requester portfolio would benefit from an integrated reputation management system to communicate and establish trust with requesters, as shown in section 5.6.2. Such a system would statistically aggregate data on requester information such as: requesters' length of stay on the platform, number of HITs posted, response time, and average pay for work and so on; supplement user reviews and make requester reputations more 'objective'. (Other characteristics of such a reputation management system have been discussed in section 6.2 under Turkopticon.)

Portfolio-based system for workers

The tool Crowd-workers attempts to tackle 'work history' of workers, which is an essential part of working online, a summary of tasks worked upon is already provided by the crowdsourcing platform, but workers need more. A 'work portfolio' or 'worker profile' generated in part by the platform and in part by the workers themselves, would support workers in this regard, so requesters can assess candidates based on the collection of work done by them that also have requester comments, rather than base their choice on mere approval rates or number of jobs completed, which doesn't necessarily show the quality or impact of work produced by them. Workers would be able to view this rich history, audit it and learn from it too. If workers were able to look at profiles of other workers, it would also enable workers to study the competition, to aid self-learning and improvement, which they already do, by posting screenshots of their worker profiles, earnings and work numbers, on forums and social media platforms as seen from sections 5.6.1 and 5.6.2.

Information aggregation on the platform

To communicate the 'current form' of the platforms, tools should provide an interactive visual analytics system (section 5.3.7, 5.6.1 etc.) with a breakdown of available work based on the various categories, number of HITs coming into and leaving the system on a daily, weekly and monthly basis, visualizations on

the basis of job types / expiration dates / time allotted / earnings etc. The tools Mturk-tracker and Turkbench try to achieve some of this, to show the big picture of the marketplace. Furthermore, a social media or web aggregator could compile descriptions of work, tips and experiences of workers from different forums and social media sites, so workers don't have to manually search through a sea of information (section 5.6.2), if they are looking for second opinions.

Summary: Communication recommendations

The recommendations provided to support communication between different parties from the sections 6.2 and 6.3.1 are summarized below:

	Communication	**Description**
1.	Synchronous Real time communication	Provide tools to communicate in real time such as IMs for requesters and workers, Live customer service chat tools for platforms, and integrated social media plug-ins for workers
2.	Visualizations and video tutorials	Communicating via detailed visual tools and video tutorials to educate and support workers in the workings of the platform or tools.
3.	A portfolio-based reputation management system for requesters	An objective reputation system for requesters that combines statistical and qualitative reviews to help with assessing suitability.
4.	Setting 'profiles' for tasks and requesters	To make search easy, search based on an extensive task and requester 'profile' to provide details of task and requesters characteristics such as 'availability' 'repeat or one-time' work and so on.
5.	Portfolio system for	A rich worker profile that has a collection of

	workers	more than just 'approval rates' for requesters to assess workers.
6.	Information aggregation on the platform	Provide a visual analysis of tasks, requesters, workers and other functions of the system to enhance workers' understanding of 'how the system works'.

Table 1**: Summary: Communication recommendations**

6.4.2 Collaboration

Research into crowdwork found that it is a feature of two main behaviours of workers as human beings (1) a competitive side, which is a prerequisite for them to get access to the jobs (2) a collaborative side, which although not apparent from the surface, is an inherent part of this distributed work culture: to support fellow-workers with information and other resources. Platforms feed on the competitive side of workers, yet we see collaboration entering the market through backchannels. The worker communities are visible and active online - as members on forum, discussion threads and Facebook groups, and, offline - in small hubs in local areas where a group of friends work together and help each other, as described in previous chapters. Here we provide recommendations to support this hidden, collaborative nature of crowdwork.

Supplementing requester review options

Currently the reviewing options for requesters are very limited, in fact, they are almost binary – requesters can either approve or reject work once work has been submitted, with side-options of providing a bonus or a comment as explained in section 5.5. Some platforms allow asynchronous forms of communication between requesters and workers while the work is taking place,

but post-submission, the reviewing options are limited. Requesters find it cumbersome to 'un-reject' work as described in section 5.5.1, as it isn't a simple straightforward task. For requesters who care about the quality of work and workers, there should be an option to allow workers to revise their results and re-submit. Conceptually, this could be accomplished by a 're-do' or 'revise' option, in addition to a simpler 'un-reject' option on the requesters' account, which would reduce the need for 'rectification' work workers have to undertake if their work was incorrectly reviewed.

Qualification tests

As informed by the qualifications and new requesters' sub-sections in section 5.6.1.1 and 5.7.2, qualification tests play a major role in getting access to work. Qualification tests are different from a qualification 'setting' which can narrow down access to work based on workers' geography, number of tasks completed, approval and rejection rates. In platforms like AMT, qualification tests are at requesters' discretion, with almost no transparency in how they are set or how worker suitability is calculated using them. Platforms should make any pre-task qualification tests clearly labelled and paid. If qualification tests are to remain unpaid, workers should be able to mark such tasks as a 'risk', to support the workers' trial and error process. Such a feature could also be integrated with the task and requester profile mentioned in section 6.3.1., so that the workers are able to mark the tasks for which they have taken the qualification tests, and work on them in full swing once they have determined 'suitability', assured future work and fair pay.

Virtual team-building

As explained in sections 4.3.2, 4.4, 5.4.2, and 5.5.2, workers have been known to share resources, work and space. Simple infrastructure can be set up to help workers to operate together, and allow virtual team-building between workers, as well as, between workers and requesters so that requesters can easily get work done on projects, which need to reuse workers or need multiple workers.

Allowing building teams would help in establishing trust between workers and requesters, remove complications around suspensions and blocks, and the platforms' need to police workers. Platforms such as Upwork have recognized this requirement, and are adapting to it, by rolling out features for team building and communication-support, but there is a plethora of platforms out there that still haven't recognized 'collaboration' as a feature of crowdwork. (Other features of such a collaboration have been described in section 6.2. under We are Dynamo.)

Work referral support

Explicit referring or passing along of work to a friend is not supported by any of the existing tools or crowdsourcing platforms, but this is fundamental for crowdwork as seen in sections 5.2.1. 5.3.6 and 5.6.1. A simple feature to 'refer work' to a friend using their work ID or email would make crowdwork visibly collaborative in nature.

Account referral support

We see in section 4.3 that referrals are an inherent part of account-creation. Rewarding them with monetary credit or some form of benefit would make it lucrative for both the workers as well as the platforms. It will also get like-minded users on-board, and make them feel welcome to the platform.

Summary: collaboration recommendations

The recommendations provided to support communication between different parties from the sections 6.2 and 6.3.2 are summarized below:

	Collaboration	**Description**
1.	Supplementing requester	A feature to increase options provided for reviewing of work to ease trust-building

	review options	between workers and requesters.
2.	Qualification tests	Clearly labelling pre-task qualification tests, making them a paid task, and integrating its features in the profile of a task and requester.
3.	Virtual team-building	A feature to build teams online so workers can operate together, or in parallel with each other to support team work to get projects done.
4.	Work referral support	A feature supporting workers to pass work to fellow workers
5.	Account referral support	Supporting introduction of friends to crowd platforms

Table 2**: Summary: Collaboration recommendations**

6.4.3 Other platform improvements

Existing tools try to support usability and design issues by either supporting the 'platform' or the 'tasks' on the requesters' side or workers side. Even so, platforms rarely take into account the need for supporting poor local infrastructure or issues of infrastructure / resource breakdown and failure. At the moment, workers get penalized due to this, and spend time and effort in repairing the harm done. Improvements suggested in this sub-section would solve multiple issues connected with the search and execution of tasks, as well as support poor infrastructure or breakdown. India, especially, has a vast network of mobile phone users but platforms do not utilize this mundane

feature of everyday life (as explained in the literature, chapter 2). This section makes suggestions that exploit this fact, and in doing so, make crowdwork more accessible. These improvements would potentially reduce the need for backchannels created to find and refer work to each other, although not entirely eliminating them, since they also serve a social purpose.

Changing task timer design

In the current process, the task is designed such that once a worker accepts a task the timer starts, and the access to the task ends with the timer, whether the worker has submitted a response or not. Workers with poor internet or electricity blackouts are sometimes not able to complete the tasks. An important design step would be to change the way these task timers works. A re-design of the timer to break with the disruption in internet and resume when the internet is back would be beneficial and fair. Workers would only get paid when the work is completed, and the need for 'rectification' and 'communication' due to contingencies such as those explained in sections 5.5.2 and 5.7.2 will be reduced considerably.

Making platform and tasks mobile-friendly

Sections 5.2 and 5.6.2 shows workers using their mobile phones to find and perform work, yet due to incompatibility with such devices, most workers simply flag work for later, rather than do them on the spot, or watch the jobs disappear. Smartphones receive internet better than clunky PCs or laptops. Moreover, every country today has a huge mobile network infrastructure that the crowd platforms don't leverage. AMT doesn't even have a mobile app, neither does it encourage its requesters to make tasks mobile-compatible. Some microtasking sites such as Microtoilers, Samasource, gigwalk, and more recently Upwork, have made their platforms available through their mobile apps on the android or IoS apps store. There is a need to make crowdsourcing platforms not just smartphone but mobile-friendly, to increase reach and productivity of workers and allow them to work 'on the go'.

Providing mobile notifications

Mobile notifications are commonplace in countries like India. From banking to shopping, information is made easily available to them through their mobile phones. And so, it's not surprising that workers employ the use of mobile phones in almost all aspects of work – from referring work to each other, to redirecting instant messages to their mobile phone devices as shown in sections 4.3.1, 5.2.2, 5.2.4 and so on. At present, 'turkalert' provides HIT notifications to turkers, but this is via email, hence not viable for mobile phone users who don't have apps installed for email clients. Workers would feel data-empowered and be able to work more efficiently if they received instant notification to their mobiles specifically via SMS, so as to make information available independent of having a broadband data plan, making 'finding', 'referring' and 'doing' work easier.

Making the platform light or available offline

The current tools such as scripts or browser extensions make the platform a heavy application, putting load on workers' internet with low bandwidth. Upwork is notorious for crashing which could be due to the growing complexity of its technical features on the platform. Making a lighter, mobile friendly version of the application might increase the platform's reach and use in countries like India where workers have to constantly manage infrastructure issues, as discussed in section 5.7.2.2. If a platform could be made available offline, or provided with a desktop app – much like skype or viber, it would make the platform more accessible and inclusive.

Another simple feature could gauge the workers' current resources such as internet bandwidth, incoming and outgoing packets, and schedule or recommend tasks based on consumption or availability of such resources.

Visualization feature for workers' work

Workers like to see what materializes from their work, the number of jobs completed, bonus earned, and use scripts available online to make graphs of earnings and ratings, or calculate pending HITs, or simply create an excel sheet for their earnings as seen in sections 5.3.6 and 5.3.7. A feature that can visualize and show work statistics, past and current income, as well as future suggestions and predictions for work, would be very useful for workers and save the time and effort they spend in making sense of their work and income. (Some detail on a prediction mechanism has been provided section 6.2. under MTurk tracker.)

Portable portfolio

Currently if a worker account is suspended, or if they quit doing crowdwork, all their work vanishes and ceases to exist. Workers should be able to download a summary of their work, income and requester reviews, so they can use this information when making applications for conventional jobs. Workers are known to use crowdwork while filling in fields of employment on social media platforms like Facebook and LinkedIn as seen in section 4.2, and hence a portable work portfolio would make crowdwork recognizable, and actually useful in 'real' world situations.

Summary: platform improvement recommendations

The recommendations provided to support communication between different parties from the sections 6.2 and 6.3.3 are summarized below:

	Platform improvements	**Description**
1.	Changing task timer design	Re-designing the task timer to break with the infrastructure failure, so workers can complete their tasks, and avoid additional 'rectification' work.

2.	Making platform and tasks mobile-friendly	Make crowdsourcing platforms and the tasks available on them mobile-friendly, to increase productivity of workers.
3.	Providing mobile notifications	Supporting finding and referring of work through SMS and instant messages on mobile phone devices, reducing internet dependency.
4.	Making the platform light or available offline	Support workers with poor infrastructure by making the platform light, mobile friendly or available offline.
5.	Visualization feature for workers' work	A sense-making feature that can show work statistics, past and current income, and provide suggestions for future work.
6.	Portable portfolio	Providing downloadable summaries of work, income, and requester reviews, so workers can re-use their history of crowdwork in other settings.
7.	'Corrections' feature for calculations on time spent data	Calculations about 'time spent' on external sources should take workers' backchannels into account including Facebook and email, and thus have a 'corrections' feature (see under Crowd-Workers).
8.	'Level of difficulty' feature	To assess legibility of a task, based on workers' skill, language abilities, and other specializations, provide filtering mechanisms on the platform (see under Turkbench).

Table 3**: Summary: platform improvement recommendations**

6.5 Summary: Implications for design

Design in the paid microtasking space is complicated due to its various stakeholders – workers, requesters, platforms, and a globally distributed workforce. AMT has been known to design its platform in such a way that it retains control of the work and social interaction on and via the platform. With AMT, although its design may have been a commercial and technological initiative, it has inadvertently resulted in a large scale disruption in the socio-economic-legal expanse due to its role in the evolving digital labour marketplace. AMT requires workers to agree to a Participation agreement that hands over control of their fates, i.e., any legal disputes to the requesters, and does not undertake any responsibility regarding the work transactions that take place on the platform. Research (prior and my own) calls for crowdsourcing platforms to provide transparency in their operations and promote communication, collaboration and relationship-building between their multitudinous users. The question that arises here is whether this built-in opacity of the platform is a deliberate design feature, and if so, what could be the reason for it? Speculating, one possibility could be that Amazon finds itself to be in a monopoly in the microtasking world due to its size and reach, and hence does not see value in changing its operational methods (ever since its launch in 2005), especially since regulatory grey area allows it to stay effective in the market, without contest. A technological reason could be that the design of the platform was intended to be simple and unsophisticated, creating a platform that could easily function through automated processes with minimum human oversight, not requiring users to actually build personal connections. AMT could also be preserving the obscurity surrounding the platform to control its own interests and vacate the market when regulatory authorities draw nearer, or it could be simply waiting to see where this digital, disruptive evolution takes microtask-based crowdwork.

The tables 1, 2 and 3, in this chapter summarize the design recommendations that could make the current crowdsourcing platforms a better work environment. These suggestions would make crowdwork a more viable option to all parties interested in using crowdsourcing platforms, and bring recognition and ease of use to this form of work.

This section also discusses the current scenario in design for crowdsourcing and raises some fundamental questions for 'design', as follows:

- Design in 'crowdsourcing' should aim to standardize basic functional features to support execution of work across platforms. Also, tools when developed formally should be implementable across all platforms, be it microtasking or more complex crowdwork, rather than be designed for individual platforms. The standardization raises the point of whether platforms should be required to follow a quality management system, with its policies, systems and tools open to internal and external audits by auditors. If so, what should the standards be and who does the auditing and enforcing of such standards?

- There are more than a dozen independent, individual tools employed in crowdwork, designed to support work from the outside. Workers download or install them on their browsers one by one. What if they were integrated together, but externally, and support a platform from the outside; it would reduce the hassle of having to install and run multiple applications, but could also lead to information overload? What if all such supporting tools were built-in functions of the platform or provided in-house by a platform to support the workers? Would it create more chaos and mistrust amongst workers, owing to the fear that the platform might be monitoring their usage and penalizing them for mistakes, or would such a platform make crowdwork easier?

- Workers want to maintain the flexibility, ease of use and autonomy the platform offers for work, while being recognized as a part of the job market. Chapter 4 describes the most attractive features for a crowd platform to be one that provides instantaneous and easy access to work,

which then leads to issues of working blind, without information regarding goings-on of the platform. How could there be a balance then in the operations of such platforms? To what extent can issues experienced by workers regarding power and information asymmetry be solved with design? Design needs to be complemented by interventions in other areas such as changes to policies and operations by the platforms.

- Due to the evolving nature of this form of work, workers are unable to trust the platforms and tools entirely and have to be careful about their investments in them. There is a need for careful study and documenting of these tools, and a discussion of methods that could undertake the long-term, in-depth study of this type of work.

- Requesters, or crowdsourcers who use crowd workers for various purposes – whether for business, research, scientific or personal, should make judgements about which crowd platforms to use based not just on the fee they charge but also on the social, technological, administrative support they provide, which would help them build and manage a relationship with the workers and reduce a lot of the 'invisible' work that this thesis has brought out.

- This also raises questions about how much transparency and information is good? Do workers or requesters want to be burdedned with micro-level information? Constant monitoring and surveillance? What are the functions that concern each party, how can they make use of it for making their work lives better? What does it mean for the platform providers?

With these question in mind, we move on to the section of limitations of this research and future work to discuss other areas that need to be looked into, in order to get a further understanding of the phenomenon of crowdsourcing and paid online work.

6.6 Limitations and future work

The scope of this study involved studying the situated work of crowdwork and the interactional and organizational aspects of it from the workers' perspective. Due to the fact that there was limited time and funding for the fieldwork, this research only takes the first step towards trying to understand the work of crowdwork through ethnography. This research encountered multiple limitations during its course, such as: (1) in the recruitment strategy – workers were found mostly through word of mouth and personal or online references, hence, the variety in the sample participant group was not regulated, as the researcher had to go with whoever was willing to provide information. (2) data was collected for most part through skype and phone interviews, and although observational data was also collected, the observations were very rigid in nature, and hence, did not catch the 'work' or its 'contingencies' in their entirety. To further explain with examples, we might have booked travel to visit a worker in their home in Hyderabad for a particular day, but on the day of our scheduled study – there might not be any HITs that the worker would have wanted worked on during a regular work day. In one case, it so happened that the worker we were going to study got his account suspended, so we couldn't observe them work. (3) we were ill-equipped to record work in some scenarios where we found multiple workers working in parallel, that might have been solved by use of technology (e.g. a screen recording software) or additional manpower for data collection or by use of a combination of methods (e.g. interviews + remote observations + survey). (4) The workers were situated all across the country; establishing trust and communication took time. In some cases, by the time the workers got around to agreeing for an interview or observational study, the researcher had already left the country. A liaison situated in the country to support the fieldwork could have been very helpful in this situation.

There are areas of crowdwork and crowdsourcing that need further exploration, that haven't been covered in this thesis as explained below: (1) the end-to-end complete lifecycle of crowdwork (2) a comparison of crowdwork in different countries and cultures (3) heterogeneity of work (4) social networks involved

(5) payment systems. The limitations and future work section provides an insight into what's missing in this research, and what more can be done in this area to enhance our understanding of crowdwork.

'Commissioning to completion' of crowdwork

Studying crowdwork from the perspective of the requester and the platform is an important part of understanding crowdsourcing. What motivates the requesters? What triggers there need to find a platform? How do they build trust with the platform, and with the workers? What does the work process entail? How do the platforms attract workers and requesters? How do they set policies regarding work and money? What assistance, if any, do they provide either party? Studying this complete cycle of workflow from end-to-end, from when a requester posts a job and hosts it on the platform to when the worker picks it up and works on it, would shed light on the workflow of the job, from commissioning to completion.

Cross-cultural studies

The study conducted in this thesis concentrates on one country alone. To understand the phenomenon of crowdsourcing globally, a multi-country, multi-sited study of the workers is required. It would be interesting to study not just the workers but the diverse crowdsourcers and platforms, as experienced in different cultures and countries, following different economic, social and legal policies.

Diverse user base

The participants of this study were predominantly degree-holder, male workers, in their 20s, who had access to some form of technology. Participants were found through convenience sampling, self-registration and word-of-mouth; recruiting a broader mix of people with respect to their age, education,

gender, digital skills and socio economic backgrounds would potentially have provided varied insights into the attitudes towards crowdwork, as well as, types of work procured.

Workers who responded to the survey for recruitment preferred doing surveys over any other type of work, which skewed the participant pool towards survey-loving workers. Future work should try to reach workers whose work preference was not just surveys but other types of tasks as well.

Capturing the acclimatization and learning stage of the workers

Most workers of this research were at a stage where they had been working on the platform for 6 months or more, and hence had partially or wholly completed their learning and education process about the platform. A first-hand study of workers when they first get introduced to crowdwork and the platform until the time when they become experts, would provide first-hand observational data of the learning process, technology and accountabilities involved in 'becoming a worker' – some of which are documented in the chapter 4 as motives and pathways.

Heterogeneity of crowdwork

This study focused on a microtask-based platform that attracted workers due to it being 'paid' work. Under paid work, there is also macrowork and complex projects, such as those undertaken on freelancer.com or Upwork, whose requirements are somewhat different from microtask-based crowdwork. There are other forms of crowdwork such as unpaid, voluntary work based platforms, which attract users who have different motivations, methods and practices to do the work. The form of work studied in this research is digital, administered and managed online, but there is a lot of work that is administered and distributed online but carried out offline or via mobile devices such as through TaskRabbit. Capturing the diversity in crowdsourced work would require

studying the heterogeneity in crowdwork, which currently is missing from the literature as well as this thesis.

Social network studies of crowdwork and workers

Socializing online was a big part of crowd work, some of which has been captured in chapter 4 and 5; workers using backchannels to consult, communicate and collaborate to support their work. A study of the social networks would be beneficial to understanding the ecology of crowdsourcing by giving insights into the multiple roles of crowdworkers, their value to their immediate colleagues and the larger community, the process of creation of online and offline 'mini-hubs', 'subcontracting' between workers and the running of informal industries or intermediary secondary markets within the community. A focused study of workers' social networks and usage of social tools like Reddit, mturkforum, Facebook, email clients and any other tools used to manage and communicate would complement the study of 'work', and develop our understanding of creating, managing and hosting crowdwork-related content for the community, as well as the process of managing conversations around various interests.

Mode of Payments

Cheques, as a mode of payment, were a decent choice in a country like India due to the prevalence of a cash-based society, even if they were late or got lost often and caused a lot of stress, as explained in section 5.8. In February 2015, AMT changed its payment method, and now offers to pay workers by either direct bank transfer or Amazon gift cards, which does not match up to cheques and their convenience. The country has some prominent online payment methods such as PayPal and Skrill that platforms like Upwork and clickworker use, but they rely on the need to have a bank account – which not all workers have, or have access to bank-related facilities like ATMs. None of the platforms explore payment issues, or offer any kind of payment protection or insurance. What happens to the money? What is the perceived value of it?

What is involved in the process of getting the money from the account to one's pocket or bank account? We touch upon the process as experienced by users of AMT in section 5.8, but more research in the area of 'money' generated by crowdwork is required.

7. Conclusion

The focus of this thesis was on ‘paid crowdsourcing work’ or ‘crowdwork’, a new form of labour. The thesis sought to understand crowdwork from the perspective of the workers who undertake such work; more so, because the work practices of crowdwork are little known and constantly judged. And to explore possible ways in which to support the work of crowdwork to make it more efficient and worthwhile for everyone involved. In conclusion, the significance and original contributions that this thesis makes are:

1. This is the first ethnographic study of crowdsourcing work based in India.

2. This is the first ethnographic study of the work of crowdsourcing from the workers’ perspective. This research found unique insights into the work of crowdwork and the key challenges in the functionalities of the systems that host and support that work.

To learn and understand more about crowdwork, this thesis reports on insights gathered from an ethnographic study carried out with the workers based in India over a period of 6 months in the year 2013. The crowdsourcing platform studied here was Amazon Mechanical Turk, wherein Indian workers are the second largest in the overall population, after American workers. The data collected by means of interviews, walkthroughs and observations was naturalistic, in one of the nationally recognized languages, Hindi, Tamil, Malayalam or English; which was transcribed and analyzed using an ethnomethodological approach, over a period of a year and half after data collection. By means of the ethnographic study, this research sought to understand who the workers were, their motives for work, their place of work and work set-up, practices followed by them in real-time - of searching, judging, and working on tasks, and also, the implications for design for crowdwork.

The key findings of this research are as follows:

- There was heterogeneity in the motives for engaging with crowdwork. While the primary motivation for workers to begin crowdwork was money and to do a 'job' of work; once workers were engaged in the work they developed heterogeneous reasons of personal and professional value to do crowdwork. Workers saw crowdwork as a form of employment, and devised strategies to keep boredom at bay and keep themselves engaged in crowdwork. Crowdwork meant quick access to simple jobs, allowing workers to work from home, at flexible hours with simple technological requirements for setting-up; but it also meant highly contingent and uncertain work, and so, workers continued to look for a 'stable' or 'conventional' job while doing crowdwork.

- Crowdwork was found to be highly collaborative in nature, as opposed to its design as individualized, atomic work. From discovering and discussing the platforms and jobs, reputation of requesters, making sense of the market to referring of work and helping each other out with complicated work. Workers liked establishing a rapport with requesters and if the platform didn't support communication internally, created workarounds using external platforms to aid this communication.

- Different aspects of crowdwork were invisible, unrecognized and unpaid to requesters and the platform, and there was no way of accounting for it. Invisible work was experienced in physical and digital setting up of the workspace, and when workers searched for, calculated and assessed available work to find one that was suitable for the workers, based on multiple criteria. Workers had to generate stability and a smooth inflow of work, to get paid decently and be able to experience 'dignity of labour' in the work. Building trust and managing relationships with requesters required communication and trial and error based work, which was invisible, and risky, but essential to crowdwork.

- Workers were unsupported by the crowd platform to a large extent, and had to constantly battle contingencies due to infrastructure failures and

unavailability of suitable work, and work hard to match jobs to the skills and resources available to them, which led workers to seek help externally by means of browser plug-ins and online forums.

As Dourish and Button (1998) say in their technomethodology article, technomethodology involves more than just a call to design computer systems so that people can understand them; it is intended to build upon the indexical or situated nature of work (and action) to make system behavior 'accountable'.

> A user will encounter a system in myriad settings and circumstances, and will attempt to fi nd the system's behaviour rational and sensible with respect to whatever those infi nitely variable circumstances might be, day to day and moment to moment. What this implies, then, is that the creation of an account for a system's behaviour is not a 'one-off' business. It cannot be handled once-and-for-all during a design phase conducted in the isolation of a software development organisation in Silicon Valley. The creation of the account happens, instead, in every circumstance in which the system is used, because the account and the circumstance of the use are intimately corelated. In technical terms, an account is a run-time phenomenon, not a design-time one. (Dourish and Button 1998, p.16)

Wider implications of crowdwork speak to the concerns of human computation systems' 'turn to the social', meaning, taking into account the 'human perspective', of those involved in using the system to dispense or find work to inform design and development of mature and sophisticated human computation systems before they are released for wide public use (Reeves, 2013; Quinn & Bederson 2011; Irani & Silberman, 2013). In this regard, Reeves and Sherwood (2010) discuss challenges for the design of human computation systems; relevant to the case of AMT is the 'framing and orientation' of the system – the way the system presents itself to the user, and 'organising human-machine relations' – discussing the role of the human and the machine as partners in an interactive process. Kittur et al. (2013) believe there is a possibility that in human computation systems, artificial intelligence can guide workers, and vice versa, to help 'train, supervise, and supplement automation' and conversely make the crowd more 'efficient, skilled, and accurate'. The current crowd platforms are designed with a 'one-shoe fits all model. Platforms like Cloudfactory, Leadgenius, CrowdSource follow a hierarchical system which allows for social collaboration and nurturing of

workers – how do these models of platform sit with the workers who like to independent and choose crowdsourcing as it flattens out the organizational hierarchy for them? As explained in Section 6.6, there are multiple areas of crowdworking that need further exploration. For instance, a comparison of crowdwork in different countries and cultures, the workflow of a task as it is created, distributed, 'worked upon', quality assured, then fitted into the larger project of the requester, exploring the online and offline social networks involved in support the work of crowdworking and so on.

Trebor Scholz, academic and activist, and proponent of workers' rights in digital labour believes that the disruptive on-demand economy, can work together to create a politically powerful movement of workers via platform cooperativism and collective decision-making to draw out subdued values of accountability, dignity of labour and democracy in the digital workplace (Scholz, 2013, 2016). Silberman (2016) discusses the development of the platform cooperative movement in recent years and a future that supports organization of digital platforms as stakeholder-owned cooperatives with democratic governance. He believes in the near future it would be possible to understand the dynamics of these complex sociotechnical systems by analysing the factors they interact with that sit outside the traditional realms of HCI such as policy and economics.

Bringing this thesis to a conclusion, we revisit the main contributions of the thesis are to the fields of CSCW, human computation, HCI and crowdsourcing. Based on the unique key insights from the thesis, some questions were raised regarding the AMT's model of crowdsourcing, and getting the balance right between flexibility, control, transparency and usability of the platforms. The thesis provides recommendations and implications for design to support the key features of the work of crowdwork, and make design of current or novel platforms better; namely:

- The key requirement for work of such a distributed nature is communication, not only between the requester and workers, but between communities of workers, and the platform as well. Communication also comes in the form of 'information' that helps

people make sense of the functioning of the platforms, and the way all the parties come together. Hence, this research recommends providing synchronous communication tools and communication by providing more information about all aspects of the platform: the tasks, the requesters and the workers via the use of extended profiles, portfolios, visualizations and tutorials. This would also reduce the invisible work of sense-making undertaken by the workers.

- The crowdsourcing platforms are generally designed to be highly individualized and atomic, but the nature of work was found to be very social, creating a conflict between the system and the users of the system, and hence, this research recommends supporting this sociality experienced by workers in referring work and platform, virtual team-building, and collaborative reviewing of work.

- To support usability issues in platforms, and the poor or limited technological resources as well as failures in infrastructure, this thesis recommends measures that could potentially reduce the unwanted repair work and workarounds that workers have to undertake, such as by, enabling mobile notifications, changing task timer design, providing portable portfolios, and in general, making the platform light and mobile-friendly.

This thesis questions fundamentals such as atomic work design, and provides recommendations for the design of key functionalities and standards within platforms that can support crowdwork. It is important to note that the dynamics of the crowdsourcing market are constantly evolving, but the underlying notions of 'work' seem to remain a constant.

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9. Appendix

9.1 Recruitment survey design and questionnaire





Understanding crowdsourced work in India

Page 1: Welcome to the Survey

Survey Participant Information Sheet, Consent and Release of Information

Project Title: Understanding crowdsourced work in India

Thank you for your interest in our project! This page describes the Survey and, if you elect to participate in this survey (Participant/ you/ your), the associated release of information. Please read it carefully. Please contact us if you have any questions (details given at the bottom of the page). Please print this page for your records.

PLEASE NOTE THAT BY CLICKING THE "Continue >" BUTTON ON THIS PAGE BELOW, YOU AGREE TO THE RELEASE OF INFORMATION TO YOUR SURVEY RESPONSES AS SET OUT BELOW. IF YOU DO NOT AGREE WITH THE TERMS AND CONDITIONS OF THIS RELEASE, YOU MUST NOT CLICK THE "Continue >" BUTTON.

Scope of Participation: This Survey is made up of 25 questions, which should take around 15 minutes to answer.

Through the survey, the Research Group seeks to understand what sites are used for crowdsourcing and why, what crowdworkers likes about them, and how crowdworkers interact with the crowdsourcing community. Recorded survey information may be used to generate insights into the activities of crowdworkers, their desires and unmet needs with current tools and technologies. These insights may be published or used to help design and implement new process or technology solutions. The survey results will be used including without limitation, in the research to produce a thesis and research publications. The survey is being conducted by researchers at the University of Nottingham, the Xerox Research Centre India (through Xerox India Limited) and the Xerox Research Centre Europe (through Xerox SAS) (together "the Research Group"), as part of a PhD degree programme in Computer Science at the University of Nottingham concerning crowdsourced work in India. By participating in this Survey, the Participant hereby irrevocably and perpetually transfers all his/her rights, title and interest in the information provided by the Participant as part of this Survey to the Research Group and unconditionally allows the Research group to use the aforesaid information in any manner whatsoever (in present or in future) including but not limited to usage of such information in the manner provided above. The Participant

shall not make any claim whatsoever on the Research Group and/or seek any sort of compensation in respect of any such usage of aforesaid information by the Research Group. The Participant further acknowledges and agrees that the aforesaid information do not need to be submitted to the Participant, in future for any further approvals etc.

The Participant will be paid a sum of currency equivalent to $2.50 USD in compliance with the applicable laws as consideration for providing information under this Survey. This sum will be paid via Amazon Mechanical Turk by entering a survey completion code in a HIT. Other than the above, the Participant agrees and states that the Participant shall never demand any royalty or other compensation (whether now or in future) from the Research Group (including its parent companies, affiliates, directors, officers, employees or agents) by virtue of the information submitted by the Participant under this Survey.

Freedom to Withdraw: The Survey is made up of 25 questions. You agree that you are participating in this Survey with full knowledge and entire understanding of the Survey and the results it seeks to achieve. You further agree that you are participating in this survey out of your free will and voluntarily (i.e. without being subjected to any form coercion or undue influence whatsoever) and you can end your participation in the survey at any time without penalty and without providing any reason before completing the last question of the survey. You have control over any information you wish to provide. If you have questions about when and how to withdraw before starting the survey, please feel free to contact us (details given at the bottom of the page).

Consent: By completing this Survey you consent and agree that the Research Group may record your responses to the Survey questions and use the recorded responses for the purposes described above and any extensions thereof. The Research Group will make every effort to preserve the anonymity of your responses. For example, no information will be stored linking you and your responses to the survey; once you submit your responses to the survey, there will be no link between your answers and you.

Participant Data: You agree not to provide any of your personal information (i.e. information which is capable of identifying you as a person; e.g., address, date of birth, etc.) when completing the survey. While the survey asks general questions related to demographics, they are not intended to seek or cause you to expose any of your personal information. You are not required to provide any demographics information that you feel may compromise any of your personal information. Notwithstanding the above, if you choose to provide any of your personal information out of your free will, you will do so, solely at your own risk and liability without any recourse to the Research Group. Furthermore, the Research Group may in its sole discretion, altogether reject the Survey results containing such personal information or shall not use any of your personal information for the purposes of Survey.

Release: You understand and agree that by participation in this Survey you agree to release the Research Group (including its parent companies, affiliates, directors, officers, employees or agents) from any claims, demands or causes of action that you may have against them related to the recording of or the use of your submitted survey responses, whether for personal injury, libel, violation of privacy, or other claims. In no event whatsoever will the Research Group have any liability to you for any indirect, incidental, consequential, special, punitive or direct damages suffered/incurred by reason of your participation in the study.

The Participant agrees and understands that the Courts at Gurgaon, Haryana, India, shall have exclusive jurisdiction to entertain disputes, if any between the Participant and the Research Group.

For questions relating to this survey or the use of BOS (this survey tool), please **contact:**

Neha Gupta PhD Researcher (Crowdsourcing),Xerox Research Centre India / University of Nottingham

Email: **neha.gupta@xrce.xerox.com**

By clicking the "Continue >" button at the bottom of the page, you represent that you are at least eighteen (18) years of age, and that you have read and understand this Consent and Release of Information and agree to its terms as mentioned above.

Page 2: Demographics information

Please note :

Once you click on CONTINUE you will not be able to return to this page. "Crowdsourcing" or "crowdsourced work" means any small or large task that you complete on a website in return for some payment or fee. Some examples of tasks - filling a form, searching for contact information etc. The work can be carried out from one or more different crowdsourcing websites. Some examples of websites - Amazon Mechanical Turk, freelancer.com, 99tests etc.

1. Which age bracket do you fall in ?

2. What is your gender ?

Male Female

3. What languages do you know ?
(select all that apply)

English

- ☐ Hindi
- ☐ Kannada
- ☐ Marathi
- ☐ Bengali
- ☐ French
- ☐ German
- ☐ Other

If your response was "Other", please the other languages you know.



4. Which state in India do you live in ?



5. Which city, town or village in India do you live in ?



6. How many hours per week do you do crowdsourcing using Amazon Mechanical Turk (AMT)?

7. For how long have you been doing crowdsourcing work ? (on AMT and any other website)

8. On average, What is your total time spent on crowdsourcing PER WEEK (on AMT and any other website)?

Page 3: More about your crowdsourced work

About the site

The term "site" or "website" or "platform" is used for the crowdsourcing website on which crowdsourced work can be carried out. Some examples are – Amazon Mechanical Turk, freelancer.com, 99tests etc.

9. What platforms do you use for crowdsourced work ?

(select all that apply)

- ☐ Amazon Mechanical Turk
- ☐ Mobileworks
- ☐ Freelancer.com
- ☐ Mylot.com
- ☐ Crowdflower
- ☐ 99tests.com
- ☐ Microworkers
- ☐ Other

If your response was "Other", please explain why.

10. Why do you do crowdsourcing work?
(select all that apply)

- ☐ To spend free time
- ☐ It is my main source of income
- ☐ It is like pocket money or extra cash
- ☐ I learn new things
- ☐ I enjoy the tasks / the work is fun
- ☐ I enjoy chatting / talking to other people who do similar work
- ☐ I have a professional / social status here
- ☐ No particular reason, I just do it
- ☐ Other

If your response was "Other", please explain why.

11. Do you have another job?

- ○ No, just crowdsourcing work
- ○ Yes, 1 fulltime job
- ○ Yes, 1 part time / contract / temporary job

- Yes, More than 1 fulltime job
- Yes, More than 1 part time / contract / temporary job

12. When do you do crowdsourcing work ?
(select all that apply)

- All day
- Before full time work/school/college
- After full time work/school/college
- While at work/school/college
- Between different part time jobs
- After finishing all my household work/ family duties
- Whenever I can find time
- Just before a festival / holiday time
- Other

If your response was "Other", please explain why.

13. Where do you do most of your crowdsourcing work from ?
(select all that apply)

- At home
- Internet café
- Friend's house
- IT facility of my work/school/college
- Public library
- Govt. internet kiosks
- While travelling (mobile internet on phone or computer)
- Other

If your response was "Other", please explain why.

14. What technology do you use for crowdsourced work ?
(select all that apply)

- ☐ Fixed broadband
- ☐ Dial-up internet connection
- ☐ LAN (shared internet)
- ☐ Wireless USB based broadband (e.g. Tata Photon, Docomo)
- ☐ Mobile internet (e.g. Pre/post-paid data from Tata)
- ☐ Smartphone (e.g. Samsung galaxy, Apple iphone)
- ☐ Personal computer
- ☐ Laptop
- ☐ Tablet computer
- ☐ Other

If your response was "Other", please explain why.

15. Do you any of the following problems affecting your ability to work on crowdsourcing ?
(select all that apply)

- ☐ Powercuts
- ☐ Poor internet connection on computer / mobile
- ☐ Cost of technology
- ☐ Not knowing how to set up/ configure devices for different tasks (hardware)
- ☐ Not knowing how to set up/ configure devices for different tasks (software)
- ☐ Sharing access to computing resources
- ☐ Cannot speak to someone directly when I have problems or questions
- ☐ Interruption from personal matters or other work-related tasks
- ☐ I have no problems
- ☐ Other

If your response was "Other", please explain why.

Page 4: Crowdsourcing tasks

16. What are your preferred kind of tasks ?
(select all that apply)

- ☐ Filling in forms
- ☐ Extracting text from images
- ☐ Tagging images
- ☐ Writing reviews, comments on products / blogs
- ☐ Searching keywords / URLs on Google
- ☐ Sending emails online
- ☐ Writing an article
- ☐ Find contact information like names / addresses/ email
- ☐ Other

If your response was "Other", please explain why.

17. How do you find good tasks?
(select all that apply)

- ☐ Search on crowdsouring site by price, requester, task title etc.
- ☐ Work for my favourite requestors
- ☐ Work on 'featured' or 'highlighted' tasks
- ☐ Work for 'top-rated requesters' only (e.g. by using turkopticon or other information)
- ☐ By using forums, mailing lists, chat groups
- ☐ Ask Friends
- ☐ Other

If your response was "Other", please explain why.

18. On average how much do you earn from crowdsourcing work PER WEEK?

19. Do you set goals or targets for your crowdsourced work (e.g. next week I want to

earn $10 from my tasks)?

- Yes
- No

If yes, please give examples.



Page 5: Communication on and off the site

"Requester" is someone who provides a task on a crowdsourcing platform and pays for it once its completed."Turker" is someone who does crowdsourced work on AMT.

20. Do you have favorite requesters?

- Yes
- No

If yes, please give examples.



21. What makes a good requester?
(select all that apply)

- They post jobs regularly
- They pay a good amount for a task
- They pay on time
- They respond to my questions
- They provide feedback after the task is done
- They appreciate my work
- They have a good rating
- They are like a friend/ colleague to me
- Other

If your response was "Other", please explain why.



22. Have you ever had to contact a requester?

- Yes
- No

a. If yes, for what reasons? *(select all that apply)*

- Missing payment
- Unfairly rejected work
- Poor instructions
- Delayed payment
- Badly designed task
- Task not understandable
- Other

i. If your response was "Other", please explain why.



ii. Were you satisfied with the response ?

- Yes
- No
- Don't care

b. Why were you satisfied or dissatisfied with the response ?



23. Have you ever had to contact your crowdsourcing site for help with your crowdsourced work (e.g. AMT Customer services)?

- Yes
- No

a. If yes, for what reasons? *(select all that apply)*

- Missing payment
- Unfairly rejected work
- Technical problems
- Blocked account
- Badly designed task
- Problems with the requester
- Other

i.



ii. Were you satisfied with the response ?

- Yes
- No
- Don't care

b. Why were you satisfied or dissatisfied with the response ?

24. Do you have contact/share information with other people working on crowdsourcing through any of the following?
(select all that apply)

- Forums / mailing lists / chat groups
- Facebook
- In person / Local groups
- Social media sites
- Other

a. If your response was "Other", please explain why.



b. If you use forums, mailing lists,local groups. Please give examples. Also, why do you use them ?



25. Overall Do you like being a turker?

- ○ Yes
- ○ No
- ○ Don't care really

a. If you do not like being a turker, then choose 'why' from the follow reasons ? *(select all that apply)*

- ☐ Low pay
- ☐ Unfair requesters
- ☐ Unsure if I'll get paid
- ☐ Boring
- ☐ Low skilled tasks
- ☐ Not enough interesting tasks
- ☐ No social interaction/isolation
- ☐ Other

i. If your response was "Other", please explain why.

b. If you like being a "turker", then choose 'why' from the following reasons ? *(select all that apply)*

- ☐ Earn money
- ☐ Flexibility of working hours
- ☐ Anonymity (people dont know who I am in real life)
- ☐ Interesting tasks
- ☐ Freedom from office / govt. rules

- ☐ Competition with other crowdsourcing workers
- ☐ Ability to use my skills
- ☐ Ability to make progress in my work
- ☐ Pleasure/fun
- ☐ Other

i. If your response was "Other", please explain why.

Page 6: Survey completed

Thank you, your responses have been saved and submitted.

Your validation code for AMT is "CSIN-xxxxxxxx-xxx" ". Please remember to email the researcher this code to get your bonus on AMT. Feel free to get in touch with us if you have any questions.

Thank you for your time!

Key for selection options

1 - Which age bracket do you fall in ?

Under 16

16 - 23

24 - 31

32 - 42

43 - 52

53 - 62

63 +

4 - Which state or union territory in India do you live in ?

Andra Pradesh

Arunachal Pradesh

Assam

Bihar

Chhattisgarh

Goa

Gujarat

Haryana

Himachal Pradesh

Jammu and Kashmir

Jharkhand

Karnataka

Kerala

Madya Pradesh

Maharashtra

Manipur

Meghalaya

Mizoram

Nagaland

Orissa

Punjab

Rajasthan

Sikkim

Tamil Nadu

Tripura

Uttaranchal

Uttar Pradesh

West Bengal

Andaman and Nicobar Islands

Chandigarh

Dadar and Nagar Haveli

Daman and Diu

Delhi

Lakshadeep

Pondicherry

6 - How many hours per week do you do crowdsourcing using Amazon Mechanical Turk (AMT)?

Less than 2 hours per week

2 - 4 hours per week

4 - 8 hours per week

8 - 20 hours per week

20 - 40 hours per week

40 - 56 hours per week

56 + hours per week

7 - For how long have you been doing crowdsourcing work ? (on AMT and any other website)

Started 1 year ago

Started 1 -- 3 years ago

Started 3 - 5 years ago

Started 5+ years ago

8 - On average, What is your total time spent on crowdsourcing PER WEEK (on 22 / 22 AMT and any other website)?

Less than 2 hours per week

2 -- 4 hours per week

4 -- 8 hours per week

8 -- 20 hours per week

20 -- 40 hours per week

40 - 56 hours per week

56 + hours per week

18 - On average how much do you earn from crowdsourcing work PER WEEK?

Less than Rs 55 (approximately $1)

Rs 56 - Rs 270 (approximately $1 - $ 5)

Rs 271 - Rs 540 (approximately $ 5 - $10)

Rs 541 - Rs 1355 (approximately $ 10 - $ 25)

Rs 1356 - Rs 2710 (approximately $ 25 - $ 50)

Rs 2711 - Rs 5425 (approximately $ 50 - $ 100)

Rs 5426 - Rs 10,845 (approximately $ 100 - $ 200)

More than Rs 10,846 (approximately $ 200)

9.2 Consent forms

Online consent form for virtual interviews (skype, phone, conferencing) using Bristol online Survey, a tool used by University of Nottingham. Form and the survey now being closed – this section presents screenshots of the preview of the online forms.



Informed Consent Form for Interview Participants

Project Title: Understanding crowdsourced work in India

This Informed Consent Form has two parts:
- Part I: Information Sheet (to share information about the study with you)
- Part II: Informed Consent (to be agreed if you choose to participate)

PLEASE NOTE THAT BY SELECTING THE "YES" BUTTON AT THE BOTTOM OF THE PAGE, YOU AGREE TO THE RELEASE OF INFORMATION TO DATA COLLECTED AS SET OUT IN THE INFORMATION SHEET AND THE INFORMED CONSENT. IF YOU DO NOT AGREE, YOU MUST CLICK THE "NO" BUTTON.

Part I: Interview Information Sheet

Introduction
Thank you for your interest in participating in the research project! This document describes the interview related to the project and, if you elect to participate in this interview (Participant/ you/ your), the associated informed consent. Please read it carefully and contact us at the address below if you have any questions about the interview or the informed consent.

The interview is being conducted by researchers at the University of Nottingham, UK working collaboratively with researchers at the Xerox Research Centre India (through Xerox India Limited), India and the Xerox Research Centre Europe (through Xerox SAS), France (together "the Research Group"/us), as part of a PhD degree programme in Computer Science at the University of Nottingham concerning crowdsourced work in India. The results of the interview will be used including without limitation, in the research to produce a thesis and research publications.

Purpose of the research and Participant selection
Through the interview, the researchers seek to understand the workflow of crowdsourced work and the activities of globally dispersed crowdsourcers and crowdworkers. More specifically, the purpose of the interview is to collect data to understand the workflow and activities comprising a crowdsourced project, from commissioning to completion (end-to-end). From this understanding the researchers will try to identify design or technology solutions to help provide a better crowdsourcing experience.

Type of Research Intervention
The interview will be conducted in person or over a Skype call or telephone call. The interview will take approximately 30 minutes. At the end of the interview you may be asked whether you wish to participate in further research activities, you may accept or decline as you want.

Procedure for Participation
If you decide to take part in the interview you will be asked to share your experiences and views relating to crowdsourcing. The interview will be conducted using the following safeguards and

procedures:

1. The activity may be conducted online, via telephone or Skype or in person at a location of your choice. Or if you would prefer, the researchers may invite to a research centre of the Research Group.
2. If you do not wish to answer any of the questions during the activity, you may say so and the researcher(s) will move on to the next question.
3. No one else but the researcher(s) will be present unless you would like someone else to be there in the interview to accompany you.
4. Notes will be taken by the researchers throughout the activity for data collection purposes.
5. With your permission, the activity may be audio or video-recorded to help support the notes taken by the researchers, but you may choose not to be recorded in this manner.
6. To the extent possible, any information you provide will be made anonymous and such information that has been made anonymous may be published and the researchers within the Research Group will not share or publish any personal information about you.
7. The data collected may be used by the researchers in the Research Group in future research projects. If you do not want your data reused on other projects then you may request that it is destroyed at the end of this project.

Risks
As a part of the interview, you will be asked to share some personal information, such as your personal experiences and views relating to crowdsourcing. However, you do not have to answer any question or take part in the activity if you don't wish to do so. You do not have to give the researchers any reason for not responding to any question or for refusing to take part in the activity.

Compensation
The Participant will be paid a sum of currency equivalent to $7.00 USD in compliance with the applicable laws as consideration for providing information under the interview. This sum will be paid via Amazon Mechanical Turk by entering an interview completion code in a HIT. Other than the above, the Participant agrees and states that the Participant shall never demand any royalty or other compensation (whether now or in future) from the Research Group (including its parent companies, affiliates, directors, officers, employees or agents) by virtue of the information submitted by the Participant under the interview.

Access to data
Any personal information that is collected from this research project and that has not been made anonymous will be kept private, stored on a password-protected device or secure lab facilities, and will not be shared with or given to anyone outside of researchers in the Research Group unless you provide us with express permission to do so. However, please note that you have control over any information you wish to provide. You agree not to provide any of your personal information (i.e. information which is capable of identifying you as a person; e.g., address, date of birth, etc.) when completing the interview. While you may be asked general questions during your interview; they are not intended to seek or cause you to expose any of your personal information. You are not required to provide any information that you feel may compromise any of your personal information. Notwithstanding the above, if you choose to provide any of your personal information out of your free will, you will do so, solely at your own risk and liability without any recourse to the Research Group. Furthermore, the Research Group may in its sole discretion, altogether reject the interview results containing such personal information or shall not use any of your personal information for the purposes of interview.

Confidentiality and sharing the Results
Personal information about you will not be shared outside of the Research Group, and nothing will be attributed to you by name. Results from this research may be reused or published for academic and research purposes. If you would like a copy of the activity summary and/or a copy of any audio or video recordings these will be provided for you after the activity.

Freedom to Withdraw
You agree that you are participating in this interview with full knowledge and entire understanding of the results it seeks to achieve. You further agree that you are participating in the interview out of your free will and voluntarily (i.e. without being subjected to any form of

coercion or undue influence whatsoever) and that you may end your participation in the interview at any time without penalty and without providing any reason before completing the interview. You do not have to take part in this research project if you do not wish to do so. You may stop participating in any interview activity at any time that you wish. In the event you end participation in the interview, all data related to it will be erased. If you have questions about when and how to withdraw before starting the interview, please feel free to contact us.

Who to Contact
If you have any questions, before or after the interview, you may contact the following researcher at:

Neha Gupta
Xerox Research Centre India
Neil Rao Towers, 1st Floor, Level-1, East Wing,
Plot No.118, EPIP Industrial Area,
Whitefield, Bangalore -- 560 066.
Phone number : +91 080 3046 1735
Email : neha.gupta@xrce.xerox.com

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Part II: Informed Consent

Background
You have been invited to participate in research to understand the workflow of a crowdsourced project, about the issues and challenges encountered when doing crowdsourced work. You understand that as part of the interview process you will be involved in an in-depth data collection activity, and that you do not have to answer any questions or provide personal information for any reason. You understand and agree that the interview results may be used in research to produce a thesis and research publications and/or in identifying design or technology solutions to help provide a better crowdsourcing experience.

Interview Notes
You hereby consent and grant permission for researchers within the Research Group to record notes during the interview and to use such information to generate insights into the activities of crowdworkers, their desires and unmet needs with current tools and technologies. You further agree that these insights may be published or used to help design and implement new process or technology solutions. You also agree that such information recorded from your interview may be reused for further research and academic purposes. Further, you agree that, provided such information has been made anonymous, your answers may be published. In addition, you agree that the researcher(s) may contact you after completing the interview by telephone or email for additional information/clarifications that may be required to complete the research project.

By participating in this interview, the Participant hereby irrevocably and perpetually transfers all his/her rights, title and interest in the information forming part of the recorded notes to the Research Group, and unconditionally allows the Research Group (including its group companies/affiliates and assigns) to use the aforesaid information in any manner whatsoever (in present or in future) including but not limited to usage of such information in the manner provided above. The Participant shall not make any claim whatsoever on the Research Group and/or seek any sort of compensation in respect of any such usage of aforesaid information by the Research Group. The Participant further acknowledges and agrees that the aforesaid information do not need to be submitted to the Participant, in future for any further approvals etc.

Interview Recordings
You may participate in this study even if you do not wish your interview to be recorded. However, should you permit researchers within the Research Group to record your interview, they will do so alongside taking notes. The reason is twofold: first, supporting media material is valuable to show alongside research findings and quotes; and second, playing audio or video is more powerful than just talking about it.

1. **Right to record and use interview recordings for internal research purposes:**

You hereby consent and grant permission for your interview to be recorded and saved by the researchers within the Research Group and used for internal research purposes: (select one)

- ○ Yes
- ○ No

2. Right to record and use interview recordings for *other* research purposes:

If you have given your consent and permission above, recordings will only be used for internal research purposes absent your providing additional consents below:

You hereby consent and grant the Research Group the right to publish recordings from the interview in presentations or articles concerning this study without identifying you by name for the following recorded data: (select one)

- ○ any recorded data (i.e., audio and/or video clips, and still images) may be used.
- ○ only recorded audio data may be used.
- ○ no recorded data may be used.

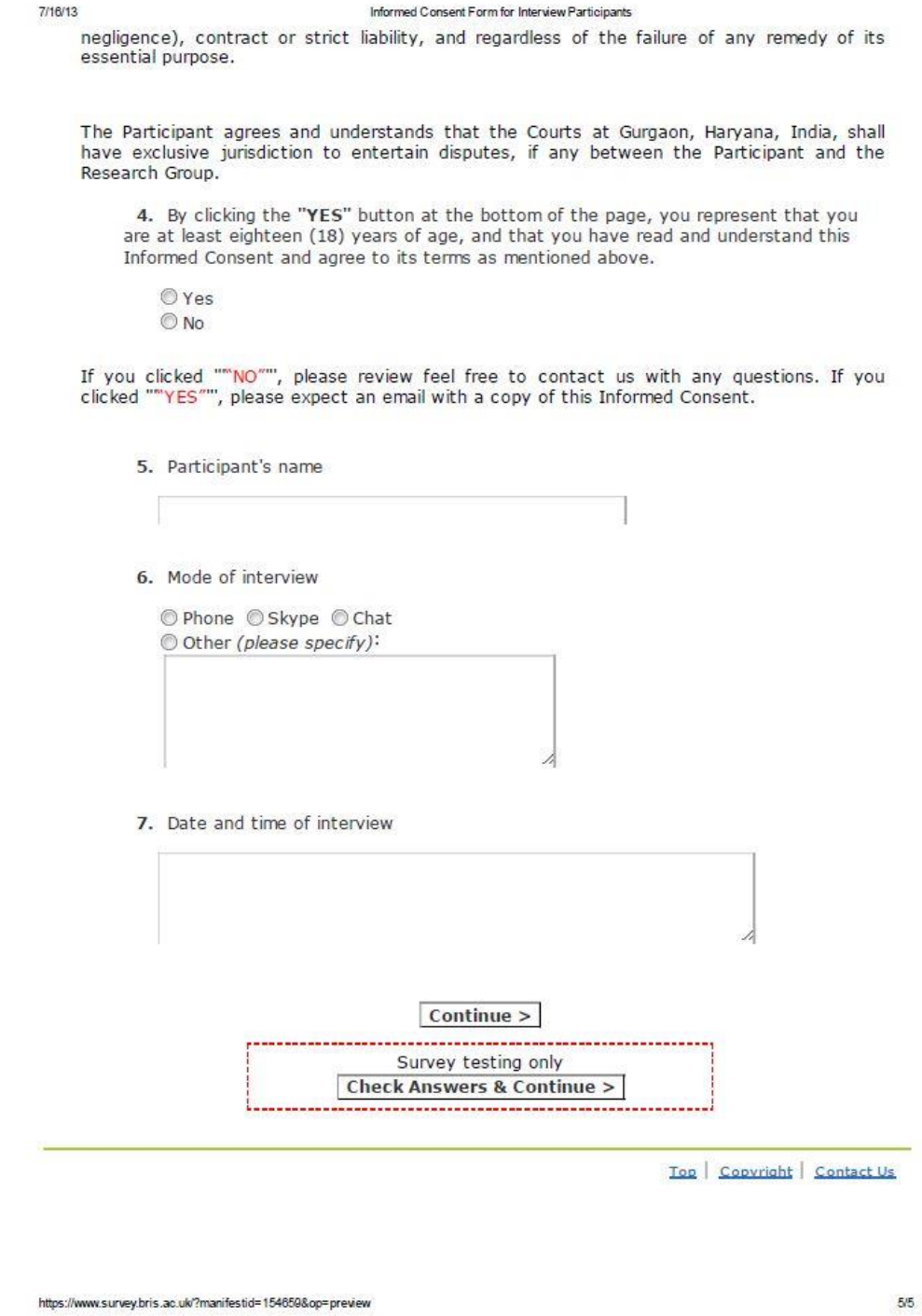
3. You hereby consent and grant the Research Group the right to use recordings from the interview as follows: (select one)

- ○ in this research project and also in any future research projects.
- ○ only in this research project.

With respect to the consents and the rights in the recordings granted above and within the scope set forth above, you grant the Research Group (including its group companies/affiliates and assigns) an irrevocable, perpetual worldwide, non-exclusive, paid-up, royalty-free, sublicensable license in the copyright of the recordings to copy, reproduce, print, publish, display, distribute, edit, modify, arrange, adapt, transform, broadcast, perform, make available, communicate to the public, create derivative works of, translate, transmit, republish (which may be the subject of aesthetic and/or technical modifications) and otherwise exploit in whole or part and sublicense the recordings as part of a compilation in any manner or format and use in advertising and promoting products and services throughout the world, by any means and medium and language now known or hereafter discovered, including without limitation, print, microform, and electronic media (including but not limited to publications, websites, Internet, YouTube, etc.)

Release:

You acknowledge that you have read the foregoing Information Sheet and that you have had the opportunity to ask questions about it and this Informed Consent. You further acknowledge that any questions that you have been asked have been answered to your satisfaction. Accordingly, you consent voluntarily to be a participant in this interview as outlined above. In so consenting, you represent that you have the full right and authority to agree to this Informed Consent. You understand and agree that by participating in the interview you hereby release and discharge the Research Group (including its parent companies, affiliates, directors, officers, employees or agents) from any and all claims, demands or causes of action that you may have against the Research Group, whether for libel; violation of your right of privacy; misrepresentation of you, your character or your person due to distortion, optical illusion or faulty reproduction which may occur in the finished product; or any other matter arising out of or in any manner connected with the rights granted in this Informed Consent. In no event will the Research Group have any liability to you for any indirect, incidental, consequential, special or punitive damages, or direct damages suffered/incurred by reason of your participation in the interview in excess of the amount you received in compensation, regardless whether any claim sounds in tort (including



7/16/13 Informed Consent Form for Interview Participants

negligence), contract or strict liability, and regardless of the failure of any remedy of its essential purpose.

The Participant agrees and understands that the Courts at Gurgaon, Haryana, India, shall have exclusive jurisdiction to entertain disputes, if any between the Participant and the Research Group.

4. By clicking the "YES" button at the bottom of the page, you represent that you are at least eighteen (18) years of age, and that you have read and understand this Informed Consent and agree to its terms as mentioned above.

Yes
No

If you clicked ""NO"", please review feel free to contact us with any questions. If you clicked ""YES"", please expect an email with a copy of this Informed Consent.

5. Participant's name

6. Mode of interview

Phone Skype Chat
Other *(please specify)*:

7. Date and time of interview

Continue >

Survey testing only
Check Answers & Continue >

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https://www.survey.bris.ac.uk/?manifestid=154659&op=preview 5/5

Same content, different signature forms for in-person interviews and observations, with relevantly modified information (compensation, activity details).

9.3 Interview Guide

Semi-structured interview guided by the recruitment survey discussing various topics about crowdwork

1. Where you live, age, background – studies / work, family status
2. How did **you start cs** (share history / experience / how long / interesting or crazy stories / how did you hear about the pf or cs)?
3. What is your **day-to-day timetable** ?
4. **Kind of tasks** (type, reason, time, instruction-based) Fit with your skills? Have you learned new skills?
5. What **keywords do you search** for on AMT ?
6. What do you **like about being a crowdworker** (the money, your approval rate, your status, competition, the learning process) - **elaborate** ? or **Why do you crowdwork** ?
7. **Discuss Requesters** (fav, like, dislike, features you look for)
8. Define a good **"requester"**.
9. Define a good **"worker"**.
10. **How do you feel** – when work is approved / rejected ?
11. Give some examples of **Boring and Interesting jobs** you have done and why did you like / dislike them ?
12. What do you know about "**master's qualification**".
13. **Relationship with any single requester** - elaborate.. **how do you build this relationship** (constant communication / feedback, automatic over time)?
14. **Has your work been rejected** ? How do you feel ?
15. **How do you do quality**-check on your work ?
16. **Forums, friends, colleagues – interaction on and off the platform about cs** (what modes, how often, any regular circle of people). What are they used for? Preferred forums?
17. **Have you referred cs to people you know** – why ?
18. **Do you mentor people / get advice from other cs-ers** ? (for task, requester, doubts)
19. **Do you go to events to meet other cs-ers or to learn about other pfs** ?
20. **Where do you work from** (workplace) / **describe the set up** (mobile on-the-go / pc)

21. **Technology used, broadband / mobile price plan** (look for investment in infrastructure), **laptop usage, electricity usage Technical problems and difficulties of all sorts?**

22. Do you have to **download software / plug-in** for the HITs ? Can you do that **easily ?** Do you use any **short-cuts, scripts, tricks ?**

23. **When do you do cs** (time of the day / days of week)

24. **Pay** – calculation of pay? are they happy with what they earn. Is there a benchmark they follow ? **How long does the money take to reach you ?**

25. **Terms & conditions** – are they happy and understand what the T&C are ? do they know about what they can & cant do ? how did they learn about them ? any mistakes they made in the past ? How could they be improved? Do they give you sufficient rights/powers? Have you been suspended?

26. **search time for a task, learn things offline, calculate rate of efficiency, record of tasks or earnings, tracking work** (Hidden / unrecognised work)? Learning curve? Optimisation (technique, technical set up?

27. Do they understand about the **greater context of the work** they do ? **where is it going to be used and by whom** ? will knowing it influence the tasks they choose to do ?

28. **Finding personal / work / cs work life balance –** how ?

29. Do you have any **health concerns (back ache, eye pain** etc) ?

30. have you faced any **ethical dilemmas in your work** ? (did not know whether you should do a task or not, or whether you feel good or bad about combining full time work with cs)

31. Do you suffer from **a lack of information**? How to help you with **information needs (e.g. on HITs/requesters/other CS workers**

32. **Are you part of a community**? If so could you describe this/what does your community do?

33. Have there been any **problems of the legal sort** ?

34. (Literacy in English) **Language of study and general ability to understand task instructions and the greater context** ?

35. (Proficiency in computer use) **what purposes does the person use computer for, do they know where to find computer-related help from** ?

36. Where do you see yourself as a crowdworker in 2 yrs ? Do you have any plans?

37. What features do you think are missing from the platforms today ?

38. If you were a requester, what would your main aim from crowdsourcing be ?

39. If you were to run a crowdsourced project, how would it work ? (what teams would you need, what functionalities would the platform have)

40. “preferred requestors” (related to Q4)– whom they like to work for? Why? Are requestors with steady and regular flow of work, possibly same type, are preferred? Would it be appreciated by them if a requestor has a “hotline” where they can reach for their queries (regarding payment, rejection)?

41. Also, do you think it would be interesting to contrast/compare with Dave’s findings from the fora? Do Indian Turks differ from the rest (mostly US turkers)– how?