Not Just in it for the Money: A Qualitative Investigation of Workers' Perceived Benefits of Micro-task Crowdsourcing

Ling Jiang
City University of Hong Kong
lingjiang2-c@my.cityu.edu.hk

Christian Wagner
City University of Hong Kong
c.wagner@cityu.edu.hk

Bonnie Nardi
University of California, Irvine
nardi@ics.uci.edu

Abstract

Micro-task crowdsourcing fosters a labor relation in which large volumes of small, simple tasks are completed at low cost by self-selected online workers. The growth of micro-task crowdsourcing, characterized by apparently low remuneration, begs the question how individual participants perceive the benefits of such microwork. In response we conducted a survey on Amazon's Mechanical Turk, a premier micro-task crowdsourcing platform. The sample included workers in the US and India. Through open-ended questions we inquired about perceived benefits of participants' work. A thematic analysis of responses revealed many benefits: monetary compensation, self-improvement, time management, emotional rewards, and benefits related to the characteristics of micro-tasking. Workers compartmentalized money earned from microwork into different non-fungible mental accounts for different purposes. American and Indian workers differed in non-monetary benefit perceptions. Indian workers valued self-improvement benefits, whereas American workers valued emotional benefits. Our results suggest that workers' recognize a diverse portfolio of benefits through microwork.

1. Introduction

People increasingly spend discretionary time online [1, 2]. Some among them are interested in paid online work, thus enabling employers to recruit workers through the cloud [3]. This situation has nurtured fast growing online labor markets, where short-term contracts are executed by workers under a piece-rate compensation system. Amazon's Mechanical Turk (Mechanical Turk), for instance, offers more than 300,000 such tasks at any point in time, according to the real-time statistics of the number of tasks numbers on its website. Sites like Amazon's Mechanical Turk give task providers access to a large network of temporary workers. Leading to the definition of crowdsourcing as "*the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call*" [4, 5]. A variety of crowdsourcing applications have sprung up to harness distributed intellect for task completion online. Crowdsourcing platforms such as Threadless, iStockphoto, or InnoCentive [6-8], are filled with innovative and challenging projects with substantial monetary rewards [9, 10]. For instance, InnoCentive offers $15,000 to solicit a method for measuring the thickness of thin polymeric films. Micro-task crowdsourcing platforms such as Mechanical Turk [11-15] or Microworkers [16], in contrast, target large volumes of small, quick tasks transacted at low cost [17, 18]. Mechanical Turk, for example, provides a worker with $0.08 to extract purchased items from a shopping receipt.

The microwork paradigm appears to defy economic logic from the worker's point of view. The micro-payments (frequently about $0.01 to $0.10 for a several-minute task) come too far below the minimum wage of developed economies. Are workers acting irrationally by completing micro-tasks at such a low rate of pay? Or are they achieving non-monetary benefits by re-framing microwork so that different benefits accrue?

Prior research on crowdsourcing has thoroughly investigated individuals' motivations for completing online tasks [7-9, 13, 19-25]. However, these studies do not differentiate crowdsourcing for open innovation from micro-task completion. Although these two types of crowdsourcing follow the same sourcing strategy, they differ considerably in the nature of tasks, target workers, and remuneration. Open innovation crowdsourcing platforms deal with relatively complex problems requiring domain knowledge and substantial rewards. Peer recognition and social capital are the key reasons for participating in open innovation crowdsourcing platforms [9]. Threadless, for instance, is a crowdsourcing platform collecting T-shirt designs from the crowd. It fosters an online community where participants share a

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common interest in creative T-shirt design. A recent themed challenge was to design a shirt inspired by tattoo art. This open call attracted more than two hundred submissions. A designer could win $2,000 if his/her design stood out from the competition, as well as gain recognition in the community. Participation thus offers creative benefits and lottery-like high pay-offs at low probability. Micro-crowdsourcing markets, in contrast, simply trade work for hire without significant social or monetary benefits. Mechanical Turk, for example, is a general-purpose market covering a range of tasks, such as relevance evaluation, data digitalization, product assessment, audio transcription, or annotation. Completing micro-tasks, characterized by autonomy, skill variety, and simplification [13, 16, 20] nevertheless provides workers a channel to acquire knowledge and to practice relevant skills such as writing, typing, information retrieval, data processing, memory, analytic problem-solving, and mental agility. Our results suggest that money is not the only benefit that matters for workers in micro-task crowdsourcing platforms.

Workers also report that micro-tasks, which are easy and quick to complete, fit nicely into small chunks of available time. Microwork thus makes good use of fragmented discretionary time that might otherwise be "wasted" [21].

Concerned with lack of attention to the distinctiveness of micro-task crowdsourcing in the literature, our study pays close attention to the particularities of microwork and why workers engage in it. We take a benefits-oriented perspective to explore the positive outcomes that workers perceive through their experiences of task completion. The results we report are from a qualitative study of Mechanical Turk that discloses a *portfolio of benefits* resulting from participation in microwork. They demonstrate how workers compartmentalize money earned from microwork into different "mental accounts", thus justifying acceptance of negligible payments.

We further report differences between American and Indian workers concerning perceived benefits, which indicate that microwork participation plays different roles in different nations.

To provide a structured account of our observations, in the following sections, we first give a brief overview of prior research on the nature of crowdsourcing and the meaning of money. We then describe our research methods, and report the results of the thematic analysis. Finally, we conclude with a discussion of the findings, and the contributions and limitations of the study.

2. Literature Review

2.1. Characteristics of micro-task crowdsourcing

Crowdsourcing [4, 5] transfers traditional forms of problem-solving and task completion by employees within organizations to an open and undefined "crowd" in cyberspace [6, 9]. Although crowdsourcing applications share commonalities in the use of an open call format and deployment of a large network of online laborers [4], they differ considerably in the nature of tasks and target workers, as well as the mechanisms of task completion and compensation of workers. To achieve a systematic understanding of crowdsourcing applications, researchers have attempted to classify them from different perspectives [9, 19, 22-30]. In this section, we examine the characteristics of micro-task crowdsourcing applications according to several dimensions: the nature of the task, types of workers, remuneration, and work process.

Crowdsourcing has been applied to a variety of tasks ranging from complex problem-solving and open innovation in specific domains [6-9] to small micro-tasks such as relevance evaluation for a query-document pair [31], quality rating on a Wikipedia article [18], customer feedback for a new product [32], annotating an image with labels [33], translation of a paragraph from Urdu to English [34], or visual perception of a graphic in shape and position [35].

Different tasks target different workers. Domain-specific applications such as Threadless, iStockphoto, or InnoCentive [6-8] seek to reach workers who share specific types of interests and expertise. For example, members of Threadless specialize in designing T-shirts and build up their own community of interest. Micro-task crowdsourcing applications, however, have few requirements for domain knowledge or specialized skills [10, 11, 16, 18]. They are open to almost all participants, lowering the threshold for market entry.

Depending on the types of tasks and workers, the mechanisms by which tasks are completed and workers are compensated can be divided into two categories: crowdsourced contests and microwork. A contest sets up a competition to find the highest-quality solutions to a challenging task. Multiple workers compete for one task simultaneously in a crowdsourced contest, where rewards are considerably more substantial than in microwork [36-39]. Micro-task crowdsourcing offers small tasks with tiny payments [10, 11, 16, 18]. A task is completed by only one worker who bids for it. The

winner-take-all in a crowdsourced contest is highly vulnerable to non-payment (since only few worker can "win", whereas all others receive no money), compared with low but highly reliable compensation in micro-task crowdsourcing.

2.2. The meaning of money

Money is typically considered a medium in the exchange of goods and services [40, 41]. The values of different objects are rendered comparable by using money as a uniform standard. As a unit of account, money is fungible such that one unit is substitutable with another [42-44]. For instance, one dollar is the same as another. On purely objective and technical grounds, "market money" has been considered as the most abstract and impersonal form of exchange and the most perfect means of economic calculation [45].

Beyond its economic utility, money's social and cultural significance have been explored in anthropology, sociology, and psychology [46-51]. Sociological and psychological factors such as individual differences, culture, and social structure, imbue money with extra-economic meanings [49, 51]. Money has personal, subjective meaning as well [49, 52, 54-56]. Individual differences such as age, gender, education, materialism, and risk-taking, can systematically shape perceptions and behaviors towards money [49]. For instance, at a young age people are less careful with money, but as they get older, they tend to budget more and are more careful with their money [48]. Better-educated people feel they have more control over money and are less obsessed by it [52].

Aside from its role as an economic objectifier, money differs in its sources, purposes, and modes of allocation [51]. To organize, evaluate, and keep track of money attached to different non-economic meanings, people compartmentalize money into different mental accounts [53-55]. Such accounts may separate money according to its source (e.g., regular income versus a windfall), or purpose (e.g., necessity versus hedonic consumption). Deviating from the economic principle of the fungibility of money [42-44], money in one mental account is usually not substituted for money in another [56]. The impact of money on motivation to work, and work-related behavior depends on the mental account into which the money falls [57, 58].

3. Research Methods

To analyze the benefits of participation in micro-task crowdsourcing from a worker's perspective, we adopted a qualitative methodology using an open-ended survey. We followed a thematic analysis approach to data analysis [59-61].

3.1. Data collection

We conducted an online survey in Mechanical Turk (Mechanical Turk, https://www.MechanicalTurk.com/Mechanical Turk/), a popular microwork marketplace established by Amazon in 2005. Tasks on Mechanical Turk are called HITs (human intelligence tasks). Participants, referred to as workers, choose from available HITs and complete them in exchange for a small payment [11-15].

For this study, we administered the survey as a HIT on Mechanical Turk. The key question for workers was "*What are the benefits of completing HIT(s) on Mechanical Turk?*" Respondents were offered one dollar for completing the survey. We collected demographic data on age, gender, country, education, employment status, tenure as a Mechanical Turk worker, number of HITs completed per week, and time spent (see Appendix A). 585 workers selected this HIT and clicked the link to our survey. Of these, 53 workers did not submit the survey, and seven submitted incomplete responses. Finally, a total of 525 completed responses was collected. We randomly put 25 responses aside as the training dataset for two independent coders. The remaining 500 responses constituted the main dataset for the data analysis. Among the 500 respondents, 63% were male, 50% were between 20 to 29 years old, and 50% were fully employed. Overall, the demographic profile of our sample was in line with the worker demographics reported in prior research on Mechanical Turk [12, 14].

3.2. Data coding and analysis

Respondents' answers to the benefit question were coded using qualitative thematic analysis [59-61]. When reporting survey quotes, original orthography and grammar were retained.

The unit of analysis was the individual theme, a patterned response or meaning within the dataset [61]. We followed Braun and Clark's [61] guidelines to conduct the coding and analysis with the assistance of a qualitative data analysis software package, NVivo 10 [62], as follows. To identify initial codes related to benefits of participation in Mechanical Turk, we first conducted an open coding on the entire dataset (including both the training dataset and main dataset) to extract benefit-related codes in a systematic way, collating data relevant to each code.

Based on the list of different codes identified across the entire dataset, we then sorted different codes to potential themes through analyzing commonalities among the codes. The relevant coded data extracts were collated to the identified themes accordingly. In the revision stage, we screened and refined the set of candidate themes iteratively by going through all the collated extracts for each theme. On the basis of the revised set of themes, we re-read the entire dataset to code any additional data that was missed in earlier coding stages. Finally, we further refined the themes according to the essence of collated data extracts for each theme.

To ensure the reliability of our thematic analysis, we had two coders analyze the main dataset according to our identified codes and themes [63]. We used the randomly-selected 25 responses as the training dataset to familiarize the two coders with the coding scheme and the NVivo 10 software. After ensuring that there was no confusion about the coding scheme and software usage, the two coders independently analyzed the main dataset (500 responses) by collating text to the codes and classifying the codes to the themes. Except for one meaningless response, the remaining 499 responses were relevant to the benefits of participation in Mechanical Turk. We left the set of candidate themes open for revision during the two coders' analysis. We finally discussed discrepancies between the coders and reached consensus to finalize the results. Appendix B demonstrates the structure of themes and codes, as well as code frequencies. Cohen's kappa score [64] was used as an indicator of inter-coder agreement. Given the three versions of coding results from the two coders and the final consensus, three pairwise kappa scores of the thematic analysis results reported by NVivo are: 0.893 (final version versus Coder 1), 0.947 (final version versus Coder 2), and 0.886 (Coder 1 versus Coder 2). According to criteria for evaluating Cohen's kappa score proposed in prior research [65, 66], the inter-coder reliability of our thematic analysis is at the excellent level.

4. Findings

In view of the results of the thematic analysis, we interpret the patterns of workers' perceived benefits of participation in Mechanical Turk, which shed light on the justification for the seemingly underpaid wages. We compare the perceived benefits between American and Indian workers.

4.1. Patterns of workers' perceived benefits of participation in Mechanical Turk

As shown in Appendix B, workers' perceived benefits of participation in Mechanical Turk fall into five main categories: monetary compensation, self-improvement, time management, emotional rewards, and task-characteristic benefits.

4.1.1. A portfolio of benefits emerges with compensation as a pervasive benefit. 86% of respondents mentioned monetary reward as a benefit of participation in Mechanical Turk. This finding confirms prior research that identified financial incentive as a primary motivation for participation in micro-task crowdsourcing.

Among the 430 respondents who mentioned money as a typical benefit, however, 312 (73%) also recognized at least one other benefit category. Obtaining a portfolio of benefits was the most common way workers thought about their participation in Mechanical Turk. US respondents reported:

"I gain knowledge and cash at the same time. It's a win-win."

"[I can] make enough money to make small purchases on Amazon / I learn a lot about myself / I feel like I accomplished something instead of wasting time"

"I get some extra pocket money, and some of the surveys I fill are actually quite interesting and give some introspection. It can be enjoyable, and if it's not at the time, you are able to take time off and come back later. Working at your own pace."

"I make a little extra money and I sometimes learn things about current events, politics, etc."

"[I can get] pocket money for small purchases. A way to be productive and earn some extra cash. Opening your mind to other types of fields that are doing interesting research"

Indian respondents reported:

"First of all, [I am] earning the additional income for running the family. / Second, [I am able] to use the free time in a productive way. / Third, [I can] keep myself competitive in the current world."

"Through survey we can gather many informations and datas. We can improve oru language, typing skills and many other skills. And will be compensated for that is a very good benefit from completing hits on Mechanical Turk."

"It provides vivid knowledge about different things. My English skills is improved through this. Day by day, I am learning more and more interesting things. At the same time, I fetches me money, which I could spend for my personal expenses."

"It improves my knowledge, I learn more about new things. It is very much fun. I enjoy doing surveys which gives me confidence. I make my time usefully. As well as I earn valuable amount which is useful for my expenses."

"I consider it as a secondary income. The pension I get as a retired Bank manager is not enough to make ends meet. Moreover I learn lot of new things. I get the opportunity to interact with people of United States, which otherwise would not have been possible."

Tasks on Mechanical Turk are so simple that it is normally assumed that workers rarely acquire knowledge through participation in Mechanical Turk. However, nearly half of our respondents mentioned that they gained knowledge or improved skills from performing micro-tasks. As respondents explained, a variety of knowledge comes along with micro-task completion:

"I get lots of general knowledge and some other countries important news. / / I get some information on how people reacting for a incident like bomb blasting through surveys. / / Aptitude type hits improve my analytic problems solving skills. / / Health, mental, surveys gives better understanding of myself. / / Also some type of hits help me to do things differently and in efficient way."

"1. Knowing technological inventions in other countries. / 2. I can know about my negative points from taking the physiological hits. / 3. Helping the new requesters. / 4. Get the apptitude knowledge. / 5. And many more products information and etc..."

"Surveys have some other interesting benefits. After answering many surveys, it makes you think about a lot of diverse issues, and clarifies your stance on them. It informs you about what various universities are researching, which can be informative with regards to psychology and current affairs, among other things."

"I have found that many tasks here are by no means menial, but rather productive and helpful. I feel like I am on the cutting edge of new technology. We workers are often times the front line of testing new things, and it is exciting!"

Another frequently-mentioned benefit, namely more effective use of time, is illustrated in the following quotes:

"I drive a forklift in a warehouse and load and unload trucks. With MTurk I can earn money when I'm waiting on a truck to arrive, which means I'm getting both my hourly wage AND cash from MTurk at the same time. It's also good for when I have insomnia and feel bored."

"I love the fact I can utilize my "game play" time to earn credit towards something I want instead of just blowing cash on it and/or blowing brain cells on candy crush saga or something,."

"I get to assist research students, and it's a very fun and educational way for me to pass my time. There's a -lot- of downtime when you're in the IT field."

"It can be an interesting way to spend down-time, for example, waiting for something else to start."

On the whole, the perceived benefits shown in Appendix B suggest that benefits in Mechanical Turk do not only take the form of money for labor. In the conventional workplace, there is a "reservation wage" below which workers will reject a job offer [67, 68]. On Mechanical Turk, we find that workers typically consider dimensions in addition to money when they decide whether to complete micro-tasks. The non-monetary benefits, once taken into account, may allow for an uncharacteristically low reservation wages. In this sense, poor payment would be compensated by intangible benefits, such as those identified in our thematic analysis. Clearly, workers would also obtain similar non-monetary benefits through regular work, for which they would demand much higher wages. In micro-task crowdsourcing, however, they can accrue both monetary and non-monetary benefits within short chunks of otherwise easily wasted time.

4.1.2. Workers compartmentalize money into non-fungible mental accounts. When payments are framed as an "underpayment," the unit of comparison is an hourly wage or a salary in the conventional workplace. As a purely objective economic outcome, money earned from a salary or wage, and money earned from Mechanical Turk, are assumed to be comparable. However, our data show that workers set up different mental accounts to frame the money earned from Mechanical Turk. Thus the money earned may not be viewed as exchange medium, but as specific "affordances" the money can buy. For instance, some consider it supplemental income to meet basic needs, and others regard it as extra earnings for inessential spending:

"I consider it as a secondary income. The pension I get as a retired Bank manager is not enough to make ends meet."

"My main benefit is earning extra, untaxed income in my free time. It's enough to help us enjoy a few more leisure activities during the month"

"I am able to earn some extra income which I can use to buy some gadgets or things that I would normally think twice to buy with my regular income."

"Even though many requesters seem to desire labor at close to slave wages (often I see hits that require several minutes worth of work for 1 or 2 cents)... or surveys that take 30 minutes and pay 30 cents... completing hits on Mechanical Turk allows me to buy non-essential items with extra-budget money. That is money that I can earn that exists outside my normal budget."

The criteria for evaluating the payment rate on micro-task crowdsourcing platforms vary with the mental account with which the money is associated. It is arbitrary to assess the payment rate of Mechanical Turk according to the wage rate of the conventional workplace, as long as workers differentiate money earned from microwork from that earned in the workplace. The seeming underpayment from microwork is more readily comprehended as part of a rational strategy to enhance economic well-being through separate mental accountings.

4.1.3. Microwork earnings may serve as a primary source of income, especially for workers in low-income regions. The majority of workers consider microwork payments as "extra" earnings, not a primary source of income. Nevertheless, for those who are unemployed or have difficulty making ends meet, the payments actually becomes an essential, accessible, and stable source of income to survive. Reliance on microwork is more common among Indian workers than American workers:

"It is my only source of income so I use the money for everything."

"I am a homemaker and do not have other source of income. This gives me the opportunity to earn."

"It helps me to survive, literally. If I hadn't found mturk, I don't know what I would have done. It buys food, pays bills, and keeps me afloat. In addition, there is a certain satisfaction that comes from being able to survive on my own because jobs are so scarce. It also feels amazing to have a great day turking and to know that I made more turking than I did at my part-time job."

"I am a very low income person and completeing HIT(s) is a way to provide more income for me. I am self employed with a medical condition that makes conventional jobs hard for me. I also live approx. 40 miles roundtrip from the nearest town that I MIGHT be able to find a job that would work for me. Finding out about mturk a few weeks ago has been wonderful. I am able to work at home, no travel costs, accomadating my medical condition by being at home and have the potential once I get more time under my belt and learn how to do more of them to make a decent part time living from this."

"Working on Mechanical Turk HITs provides me an opportunity to earn some extra cash to support my family. I have been laid off by my employer since late 2012 and I do a couple of part-time jobs to make ends meet. But none of them yields me the money I get from MTurk."

Some workers even attempted to save up the small payments for big purposes:

"I surprised my husband with $600 to pay off our credit card bill. Now I'm saving for a new mattress set for our guest room bed."

"Looking to buy an engagement ring for my girlfriend"

"Pocket money, and save toward a home improvement project"

"I am trying to earn $2 a day everyday for $$$ to help pay for a trip to Disney World once my girls are old enough."

"I make a little bit extra money every month that all goes towards my yearly vacation fund or toward my kids if they need extra money."

"Small amounts add up to quite a bit if done consistently daily. I get lots of things through amazon with my survey money."

The small payments could, over time, accumulate to serious money, especially when workers realized that through routine and hard work they could amass enough for fairly large expenditures such as vacations. Under such circumstances, the small payments were justified by lack of alternative sources of income.

4.2. Comparison between American and Indian workers

4.2.1. American workers were more likely to recognize money earned from Mechanical Turk as "extra" earning. American workers were more likely to recognize money gained from microwork as "extra" earning, distinct from regular income earned in the conventional workplace. In contrast, a majority of Indian workers considered the money earned from Mechanical Turk as supplemental income or general funds not compartmentalized for vacations and the like.

4.2.2. Indian workers were more likely to view microwork as self-improvement. The knowledge- and skill-related benefits were more salient for Indian workers. Mechanical Turk in fact provided a platform that helped Indian workers learn about a rapidly changing world through exposure to current and diverse information. It allowed them to polish technology-related skills through completing the digitalized micro-tasks.

4.2.3. American workers were more likely to consider completing tasks as a means of helping others. While there is no significant difference in enjoyment of microwork, more American workers expressed emotional fulfillment with respect to helping others through completing tasks. As some US respondents mentioned:

"You can help others by doing simple tasks and making a little extra spending money"

"I also enjoy doing small tasks and giving my honest opinions because at least I can feel like I am contributing to something. Perhaps my information can help the right person."

"Completing HITs often helps contribute to bodies of research and knowledge."

"I think my participation helps research by providing a volunteer perspective from a demographic they might not otherwise reach."

5. Discussion and conclusion

Our study indicates that money is still recognized by workers as the primary benefit of participation in micro-task crowdsourcing, even though the payment rate is much lower than in the conventional workplace. However, money is not the only benefit with which workers are concerned.

Our data show that workers conceptualized microwork in Mechanical Turk as a comprehensive portfolio of benefits, including, but not restricted to, money. The low rate of pay was justified by its compartmentalization into financial and non-financial categories of worth invoking values of self-improvement, family welfare, and thrift. Some workers had amazing patience and long-term orientation, saving for expenses that would not occur for several years. Many saw how to efficiently use free time to good effect, even though the hourly rate of return was very low. While we can still question economies that push people to work for so little, in particular when they are attempting to "survive," as some of our respondents were, we must also acknowledge the clever ways in which people managed their time and doggedly defined, and then worked toward, the achievement of long term goals. We might even suggest that microwork could, in the future, be paired with a minimum guaranteed income to afford a low-consumption lifestyle in which work at home, with its advantages for stay-at-home parents, elder caregivers, the disabled, and the elderly, could reduce dependence on the vagaries and inefficiencies of welfare payments, as well reducing our environmental footprint [69, 70]. Microwork at scale might evolve into the first real incarnation of the "electronic cottage" proposed by Toffler [71]. Perhaps in the future we will view microworkers as pioneers who began the reconfiguration of the labor relation through digital technology. Of course such a reconfiguration would involve a critical shift in ideas about the meaning of employment and the desirability of a guaranteed income. Such discussions are underway [70, 72] and microworkers are part of the conceptual landscape for reimagining the future.

Our study has some limitations. First, replications of the study across different micro-task crowdsourcing platforms will certainly help us learn more. Second, follow-up studies that aim to confirm the findings regarding the construction of a portfolio of benefits are necessary to further validate our findings.

Notwithstanding the limitations, our study reveals that while workers participate in micro-task crowdsourcing to make money, they also realize a portfolio of benefits beyond money. The additional benefits we documented, such as self-improvement and time management, have not previously been reported in the literature. Finally, the observed differences in perceived benefits between American and Indian workers call for attention to factors at the group or social level, such as the degree of economic development and national culture, which can impact the ways microwork is conducted and valued across different nations.

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Appendix A Demographic statistics of sample

Demographic variable	Level	Frequency	Percentage (%)	Demographic variable	Level	Frequency	Percentage (%)
Gender	Male	314	62.8	Country	USA	194	38.8
	Female	186	37.2		India	283	56.6
Age	<=19	8	1.6		Other	23	4.6
	20-29	252	50.4	Employment status	Full-time job	251	50.2
	30-39	144	28.8		Part-time job & not a student	78	15.6
	40-49	45	9.0		Unemployed & not a student	83	16.6
	50-59	31	6.2		Part-time student	30	6.0
	>=60	20	4.0		Full-time student	58	11.6
Education	Primary / Elementary school	2	0.4	Tenure	<=6 month	127	25.4
	High school	71	14.2		7-12 month	127	25.4
	Vocational / Technical school	33	6.6		13-18 month	82	16.4
	Undergraduate	265	53.0		19-24 month	69	13.8
	Master / Postgraduate	129	25.8		25-36 month	66	13.2
Number of HITs per week	<=20	82	16.4		>36 month	29	5.8
	21-50	112	22.4	Time period for Mechanical Turk (nonexclusive)	Leisure time	363	72.6
	51-100	93	18.6		Regular work time	180	36.0
	101-200	72	14.4		Break time	161	32.2
	201-500	78	15.6		Waiting time	94	18.8
	501-1000	42	8.4		Trivial time	80	16.0
	>1000	21	4.2		Regular class time	23	4.6

Appendix B Results of thematic analysis

Theme	Code		Frequency by respondent				Percentage by respondent (%)			
			USA (n=194)	India (n=282)	Other (n=23)	Total (n=499)	Individual category as base		Individual country as base	
							USA	India	USA	India
Monetary compensation (n=437 / 88%)	Monetary reward (n=430 / 86%)	Supplemental income	33	36	2	71	46.5	50.7	17.0	12.8
		Unessential earning	24	16	3	43	55.8	37.2	12.4	5.7
		Extra money	34	27	2	63	54.0	42.9	17.5	9.6
		Money in general	91	157	13	261	34.9	60.2	46.9	55.7
	Amazon purchase		3	3	4	10	30.0	30.0	1.6	1.1
Self-improvement (n=233 / 47%)	Knowledge acquisition (n=182 / 36%)	Knowledge about new things	11	25	1	37	29.7	67.6	5.7	8.9
		Knowledge about different things	3	8	0	11	27.3	72.7	1.6	2.8
		Knowledge about oneself	8	3	0	11	72.7	27.3	4.1	1.1
		Knowledge about crowdsourcing	0	2	0	2	0	100.0	0	0.7
		Knowledge about research	4	2	0	6	66.7	33.3	2.1	0.7
		Knowledge - Other	3	11	0	14	21.4	78.6	1.6	3.9
		Knowledge in general	15	97	0	112	13.4	86.6	7.7	34.4
	Skill improvement		8	37	0	45	17.8	82.2	4.1	13.1
	Keeping mind sharp		10	7	0	17	58.8	41.2	5.2	2.5
	Enhancement of HIT profile		2	7	0	9	22.2	77.8	1.0	2.5
	Experience		1	13	1	15	6.7	86.7	0.5	4.6
	Self-confidence		4	12	0	16	25.0	75.0	2.1	4.3
	Self-quality		0	6	0	6	0	100.0	0	2.1
Time management (n=119 / 24%)			49	64	6	119	41.2	53.8	25.3	22.7
Emotional rewards (n=75 / 15%)	Enjoyment and satisfaction		24	32	1	57	42.1	56.1	12.4	11.4
	Helping		19	5	1	25	76.0	20.0	9.8	1.8
Task characteristics (n=71 / 14%)	Autonomy		14	12	0	26	53.9	46.2	7.2	4.3
	Variety of task		1	5	0	6	16.7	83.3	0.5	1.8
	Ease of task		2	7	0	9	22.2	77.8	1.0	2.5
	Interesting task		14	15	1	30	46.7	50.0	7.2	5.3
	Challenge of task		1	4	0	5	20.0	80.0	0.5	1.4
	Task - Other		2	2	0	4	50.0	50.0	1.0	0.7
Other benefits (n=25 / 5%)			11	14	0	25	44.0	56.0	5.7	5.0