
The Price of the Priceless: Understanding Estimated Costs of Work in Friendsourcing

Joey Chiao-Yin Hsiao

National Taiwan University
No. 1, Sec. 4, Roosevelt Rd.
Taipei, 10617 Taiwan
r99922012@ntu.edu.tw

Jane Yung-Jen Hsu

National Taiwan University
No. 1, Sec. 4, Roosevelt Rd.
Taipei, 10617 Taiwan
yjhsu@csie.ntu.edu.tw

Mei-Hua Pan

National Tsing-Hua University
No. 101, Sec. 2, Kuang-Fu Rd.
Hsinchu, 30013 Taiwan
s103062509@m103.nthu.edu.tw

Hao-Chuan Wang

National Tsing-Hua University
No. 101, Sec. 2, Kuang-Fu Rd.
Hsinchu, 30013 Taiwan
haochuan@cs.nthu.edu.tw

Abstract

Friendsourcing, or outsourcing tasks to one's online and offline friends, is increasingly common and versatile. As regular crowdsourcing, friendsourcing requesters need to incentivize potential workers (i.e., friends) to actually engage and complete the requested tasks. However, it is unclear how to effectively motivate friendsourcing workers and what incentives, which may include both social and monetary ones, are considered feasible in friendsourcing, especially by taking social relations between requesters and workers as part of the calculation. In an exploratory study, we asked participants to report their estimations of feasible payment as a requester, and reward as a worker in friendsourcing. We compare the estimated costs of friendsourcing to regular crowdsourcing, and find that there exists a gap between requesters' and workers' expected costs. Individuals would like to pay more as a requester, and expect to receive less as a worker in friendsourcing. Consideration of social transaction and relationship maintenance is involved. We discuss the implications for designing friendsourcing systems.

Author Keywords

Friendsourcing; social transaction; social networks

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Introduction

Crowdsourced collective human intelligence has proved its usefulness on tasks that are intractable to mere machine processing or too expensive to handle by human experts. However, regular crowdsourcing is heavily decontextualized. Online crowds can mostly complete tasks that do not need specific knowledge of a local context (e.g., things happened to a specific community or individual). For tasks that need contextual knowledge, such as answering questions of specific communities, or editing personal documents, crowdsourcing to unknown workers appears to be infeasible. Instead, friendsourcing (outsourcing to friends of one's social network) [2] or communitysourcing (outsourcing to community members) [6] can have value that regular crowdsourcing does not have in these scenarios.

It has been shown that networking and communication on social network sites (SNSs), such as Facebook and Twitter, have social capital and value for problem solving [5]. What's not clear is how to effectively turn friends to friendsourcing workers to unleash their problem solving potential. Clearly, individuals will not be able to friendsource tasks very well if what's offered explicitly and implicitly, such as payment and reciprocal help, does not match what is expected by their friends. It is therefore crucial to know whether task requesters and potential workers, who are also friends of requesters, would share consensus on the estimated costs of specific tasks, and what is the reasoning behind requesters' and workers' determination of "how much the work costs". Existing research typically assumes that monetary payment and

reward are not required in friendsourcing [9], but the assumption is more of an intuition, and also needs careful verification. Based on the background discussed, it is useful to understand what individuals would like to offer to their friends if they need to friendsource a task, and reversely, what would they expect if they're asked to help with a friendsourcing task instead?

In the rest of the paper, we present an exploratory study using surveys and interviews to investigate individuals' reasoning and estimation of friendsourcing costs for a personal document editing task.

Social Request and Friendsourcing

Asking friends for assistance or resources on SNSs has been studied in a body of literature. Morris et al. used an online survey to understand users' behavior and intention in social question answering [8]. Lampe et al. analyzed how people respond to mobilization requests on SNSs [7]. The literature has documented how people leverage online social networks for the completion of a variety of tasks, while there's still not enough understanding on how to improve the quality and outcomes of friendsourcing through incentive designs.

There are also attempts on using friends as the main source of computation and data collection for the building of computing systems. For example, Bernstein and colleagues [2] proposed a system called Collabio for collecting friend-generated tags of individuals. The collected tags can further be used for personalized services like RSS feeds. While domain- and application- specific systems like Collabio are valuable, effort is still needed for a more general understanding of how to use friends as the elements of crowdsourcing systems. In this paper, we present an exploratory study as part of this effort.

Condition F

Imagine that you are going to post a proofreading request of the SOP onto a social network site, asking your friends to help you. Please write down the content you may post to ask some friends to complete the task for you.

What is the reward you would like to offer?

- \$0
 \$1 - \$150
 \$151 - \$300
 \$301 - \$450
 \$451 - \$600
 \$601 - \$750
 \$751 - \$900
 over \$901
 others:

Are there any concerns other than financial issue?
e.g., privacy, urgency.

Figure 1: The questionnaire from requesters' perspective in *F* condition. Payment options range between \$1 and \$900, each corresponds to a fixed range of \$150, resulting in six options (e.g., \$1 - 150, \$151 - 300, and so on). Three extra options are also added: "\$0", "over \$901", and "others (than money)". If a participant chooses "over \$901" or "others" in the questionnaires, the participant would be asked to help us convert their choices to equivalent monetary value if feasible, so that we may calculate the average perceived value.

Method

To understand people's estimations of costs of friend-sourcing work, we conducted a survey study with follow-up interviews to investigate individuals' perceptions when they play different roles, as a requester or as a worker, in situations of friendsourcing where the requester and workers are friends, as well as crowdsourcing where the workers are unknown to the requester.

The study required the participants to complete two perspective-laden questionnaires, one from requesters' perspective and the other from workers' perspective in each condition. There were a total of two conditions, friendsourcing (*F*) and crowdsourcing (*C*), and each participant was required to complete both conditions.

In the questionnaires, we asked participants to estimate the cost of an article proofreading (e.g., correcting typos and errors in an article) task from both the requester's and worker's perspectives. We provided a 500-word English statement of purpose (SOP) for graduate school application as a sample article. While it is possible to divide proofreading into smaller micro tasks, such as separating error identification and fixing [1], here we focus on the holistic aspect of proofreading for simplicity.

The perceived value may heavily depend on subjective feeling, so we set an anchor to help participants estimate the price of the task from the same baseline. According to market survey¹, the price of 1000-word proofreading ranges from US\$10 to \$60. We chose US\$15, or NT\$450², as the anchor for our 500-word document, which should be a reasonable one according to the real market price.

¹[scribendi.com/advice/how_much_does_proofreading_cost.html](https://www.scribendi.com/advice/how_much_does_proofreading_cost.html)

²The currency used in this study is NT dollars. We omit the NT symbol in the rest of this paper for reading convenience.

In the questionnaires that asked participants to take a requester's perspective, participants were asked to picture that she is going to post a proofreading request online. Participants needed to describe what they would post to recruit workers from their social network (in condition *F*) or from an open participant recruiting site (in condition *C*). They were asked to estimate the cost of the task and report what amount of payment they would like to offer. In case they do not wish to use payment to incentivize their workers, they have the freedom to choose the option "others", and describe their concerns. Figure 1 presents an example of the questionnaire. Similarly, for questionnaires taking a worker's perspective, participants were asked to report the estimated amount of reward that is considered reasonable to them for this particular task.

The combination of the two perspectives (requester, worker) and the two conditions (*F*, *C*) resulted in four different questionnaires. A participant needed to complete all of the four questionnaires and the order was counter-balanced. In follow-up interviews, we further asked participants about the reasons and concerns behind their decisions. A total of 12 participants (5 females) with an average age 26.6 years old participated in the study. While none of them was native English speaker, they all had at least a bachelor degree that requires proficiency in English, and thus the proofreading task is not irrelevant. All the interviews were transcribed for coding and analyses.

Result

Figure 2 & 3 show the distribution of the expected payment and reward when the participants play the roles of requester and worker in each of the conditions. We calculated correlation coefficient to understand if estimated pay and reward match, and used paired-sample *t*-test to examine how our conditions affect the estimated cost.

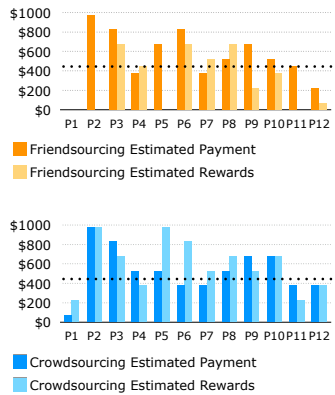


Figure 2: The results of the questionnaires in the two conditions. The dotted line presents the anchor price.

In condition *C*, requesters would offer \$525.0 on average for the task, and workers estimated \$587.5 as reward. The correlation of the estimations between *C* requesters and workers is strong ($r_C = .63$, $.6 < |r_C| < .8$). On the other hand, *F* requesters were willing to pay in average \$537.5, while *F* workers expect only \$306.25 in return. We only observe a weak correlation in *F* ($r_F = .26$, $.2 < |r_F| < .4$). Surprisingly, what a friendsourcing requester is willing to offer is not always consistent with what a friend worker would expect to receive.

In terms of the estimated cost by requesters, there is no statistical difference between condition *F* and *C* ($t(23) = -.12$, $p = .91$). In terms of workers' estimation, we detect a significant difference between *F* and *C* ($t(23) = .39$, $p < .05$). The result implies that *F* requesters may be willing to pay around the same as *C* requesters, while the estimated reward in *F* is significantly less than *C*.

Along with the quantitative analysis above, we also examined our interviews iteratively, and identified a number of important themes that we present below.

F Requesters Give Higher Material Reward

Most of our participants chose to pay as a *F* requester. On average, *F* requesters are willing to pay around the same level as *C* requesters, which appears to be counterintuitive since it is generally considered that friendsourcing costs less than crowdsourcing [9].

"It is just too bad to pay nothing (to friends)... yeah, you know, I don't like owing others." (P3)

People might consider that friendsourcing creates "social debts", and thus they are willing to pay it back in the form of payment at a level similar to crowdsourcing.

Furthermore, perceived cost of work in both conditions are higher than the anchor price \$450. In *F* condition, the high price plays the role of filling the gap of social debts:

"Yeah, I'd like to be kind to friends (higher than the anchor price). Friends should be more reliable, and I don't wanna take advantages of them... So if it's for friends, I'd not... I'd not take it as a commercial transaction." (P5)

In friendsourcing, monetary reward is not merely an incentive for mobilizing friends. *F* requesters may take monetary reward as a catalyst for long-term relationship.

Although in the questionnaires, monetary price is what we asked participants to report, some of the participants indicated that other forms of exchange are preferred, e.g., a meal or a small gift. In other words, *F* requesters would like to avoid monetary exchange with friends. Paying by other forms of material rewards may be a way to make the transaction more "social" instead of "commercial".

F Workers Expect More Symbolic Value

Participants tend to accept work for lower rewards or even no reward as a *F* worker. A participant described his reasoning and decision on accepting friends' requests:

"...and if it's for friends, then, well, maybe some discount, perhaps 50% off (from market price)... I'd still ask for some rewards... but not so much... like 50% off." (P9)

According to social transaction theory, though stronger negative emotions may happen when failure happens, economical exchanges paired with a social relationship could help strengthen trust [3]. Small monetary exchange can work as a contract to both requesters and workers.

Similar to *F* requesters, *F* workers would like to receive return in other forms rather than money. Moreover,

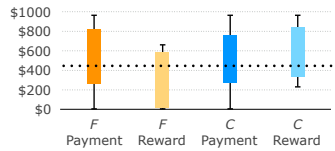


Figure 3: The boxplot chart presents an overview of the results of the four conditions. The top and the bottom of the rectangle are one standard deviation above and below mean respectively. The line indicates the maximum and the minimum of the answered estimated payment or reward.

instead of monetary incentives, some *F* workers may be motivated more by social incentives.

“Though I might ask for some payback, it is not really necessary... it depends on who the one is and how our relationship is... and yeah, you must show your sincerity, but not definitely by money or concrete things.” (P6)

This implies that the pre-existing social relation and social concerns play a role in friendsourcing. Requesters in crowdsourcing can have most control over the transaction, while in friendsourcing, requesters and workers can share equal power of decision on shaping the transaction.

Different Strategies to Tasks of Different Complexities

Most participants tend to publicly post lightweight requests to their social network, such as opinions to a product or recommendation of restaurants. These kinds of requests are studied as Social Q&A [8] and mobilization requests [7], which are considered to be free or low-cost.

On the other hand, if one expects some friends to help on complex tasks, e.g., editing document or teaching programming language, the request may be directed post to appropriate individuals or communities:

“Well, if I know there should be someone who can solve the problem in a group, I would directly post my request to that group. Otherwise, I would send private messages to someone who might be able to help.” (P4)

F requesters believe that narrowing down the audiences of their requests can improve the efficiency of receiving assistance. Another participant also reported similar opinions from the perspective as a *F* worker:

“...the difference is that I would surely reply private messages (while might ignore public requests)... Yeah,

definitely answer the requests sent privately.” (P6)

Though there is no guarantee that privately asked friends can assist, the perceived responsibility by *F* worker might help improve *F* requesters' perceived efficiency of replies.

Design Implications

Based on our current findings, we identified three design implications for researchers and system designers for future research and the development of friendsourcing tools.

Support Alternative Exchanges

According to our study, a gap of cost estimation exists between *F* requesters and workers. Social relation and social transaction play a role here. However, instead of monetarily free services, both friends requesters and workers expect some material exchanges between them. The exchanged value in a friendsourcing system should be a blending of financial and social incentives.

Help Identify Potential Experts

In addition to making open calls as regular crowdsourcing, participants also rely on specifying friends for help, especially for complex tasks needing professional knowledge. Friendsourcing systems should be able to identify and recommend potential experts on one's social network for complex requests. From the view of gaining social capital, this not only helps requester resolve the tasks, but also helps bridge social capitals to the requester.

Switch between Friends and Crowds

Extended from the previous point, a friendsourcing system should not only be able to recommend experts on one's social network, but also suggest one to turn to general crowds if necessary. Friends can provide contextualized, personalized assistance, while general crowds may be more efficient on other tasks, and there is no social concern in

regular crowdsourcing. Providing the flexibility of switching between different types of worker pools, and integrating the capacities of various workers could lead to a more powerful paradigm of crowd computing.

Discussion and Conclusion

The paper presents an understanding of the estimated costs of work in friendsourcing in comparison to crowdsourcing. Based on the study, we suggest that friendsourcing should be considered as paid rather than free services, although the payment would depend on stakeholders' perceptions of social relations and needs.

Since friendsourcing is based on social relations, cultural factors need to be considered in the future. Our participants are all with an East Asian cultural background, which means that they build GuanXi with others, a type of social relationship unique to the Eastern culture [4]. In other words, they may perceive more mutual obligations with their friends, and thus expect to pay more and take less in transactions with friends.

Furthermore, the sample proofreading task is a holistic one, which may increase friendsourcing requesters' perceived social debts, thus exacerbating the asymmetrical estimation between requesters and workers. It is necessary to further investigate the role of task granularity, and see if a divide-and-conquer strategy influences estimated costs.

The results presented are based on self-reports with a relatively small number of subjects. Studies deployed in reality involving more participants are necessary to establish deeper understandings. Our next step is to develop a system for unleashing the power of friendsourcing, and our ultimate goal is to leverage the understanding to enable more beneficial, natural and versatile employment of one's social capital.

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