
Crowdfunding: A Resource Exchange Perspective

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Abstract

Online crowdfunding has gained attention among novice entrepreneurs as an effective platform for funding their ventures. However, a focus on the financial nature of the relationship has obscured the complex interpersonal interactions involving the exchange of non-financial resources. Drawing from resource exchange theory in the marketing literature, we look at the exchange of resources and the mechanisms that facilitate this exchange in online crowdfunding. We analyzed 81 popular online crowdfunding platforms to reveal the exchange of various resources including: money, love, information, status, goods, and services through mediated, unmediated, and hybrid structures. Using resource exchange theory as a lens, we examine crowdfunding as a new type of crowdwork platform and explain how resource exchange theory can help the HCI community understand new, crowdwork platforms.

Author Keywords

Crowdfunding; crowdsourcing; framework; survey; resource exchange; online communities; innovation; work practices; online communities

ACM Classification Keywords

H.5.3 [Group and Organization Interfaces]: Design

Introduction

The popular press heralds crowdfunding as a way for people, typically with limited access to capital, to raise

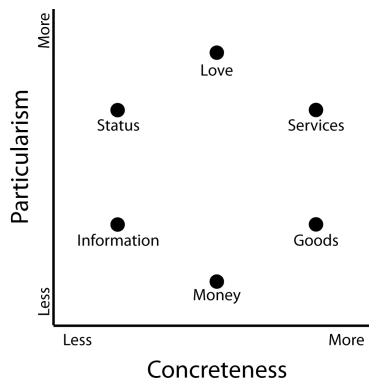


Figure 1: Resource Exchange Theory diagram of Foa and Foa [8]. This diagram illustrates the proximity of resources on the dimensions of particularism and concreteness.

money for ventures and for a crowd, a distributed network of individuals, to support them They celebrate its potential to spur new ventures that can fuel the economy [13]. To realize this vision, crowdfunding platforms facilitate the exchange of resources between *requestors* (people who create resources) and *respondents* (people who give resources) [2, 12, 15].

We argue that the financial nature of crowdfunding has obscured the critical and overlooked exchange of other resources on crowdfunding platforms. We adopt resource exchange theory (RET) [8] from the marketing literature to provide a new perspective to human computer interaction (HCI) researchers and designers who seek to understand and support the ways in which people interact with technology. We analyzed 81 crowdfunding platforms to identify the resources exchanged, the roles that users adopt on crowdfunding platforms, and the mechanisms in place to broker the exchange of resources for venture formation.

The key contributions of this research are:

- An understanding of resources exchanged and support mechanisms in crowdfunding.
- Preliminary HCI Design implications for crowdfunding platforms.

Crowdfunding is a critical new area of study for HCI researchers and designers as it is a computer-mediated phenomenon that changes the way people interact with each other. In this paper, we use resource exchange theory to examine the landscape of existing crowdfunding platforms. We begin to extrapolate our findings to suggest how crowdwork platforms at large can foster interactions and exchanges.

Crowdfunding

Broadly, crowdfunding platforms support the request for financial resources in exchange for a reward offered by a requester [12, 15]. Specifically, crowdfunding platforms must allow for 1) many individuals to offer financial support to realize ONE new venture 2) individuals to raise and receive funds between the ideation and completion of the project, and 3) voluntary financial contributions. An example of crowdfunding is the OUYA project, where just over 65,000 people contributed over \$99 each before the completion of a single new venture to build a new video game console. All donations are voluntary and occur online. The act of crowdfunding online, although we define it as the exchange of funds, is based on the exchange of resources of many types. We adopt exchange theory to investigate and explain this phenomenon.

Resource Exchange Theory

Resource exchange theory (RET) is the result of work by Foa and Foa in 1971 as a means for explaining reciprocal social interactions of humans. The core tenet of RET is that people exchange six distinct categories of resources: love, status, information, money, goods and services [6–8] (see Table 1). Foa and Foa arranged the resource categories according to two dimensions: concreteness and particularism (Figure 1). They define particularism as "the extent to which the value of a given resource is influenced by the persons involved in the exchange." [9] (p. 80). While concreteness is defined as the "form or type of the expression characteristic of the various resources" [9] (p.80). Appropriateness of exchange is based on proximity within this diagram.

In this work we are looking at crowdfunding through the lens of RET, although we argue that crowdwork platforms in general could benefit from similar analyses. RET has

Resource	Description
Money	Any coin or token that has some standard of exchange value
Love	An expression of affectionate regard, warmth, or comfort
Information	Includes advice, opinion or instruction or enlightenment but excludes behaviors that could be classed as love or status
Status	An evaluative judgment conveying high or low prestige, regard or esteem
Goods	Tangible products, objects or materials
Services	Activities on the body or belongings of an individual that often constitute labor.

Table 1: Resources for exchange in RET

implications for other sub-fields of HCI as well including, affective computing and interaction design. We see RET as a framework to view computer mediated platforms for exchange as it allows us to understand existing dyads of exchange, envision future dyads of exchange and see potential pitfalls when designing types of exchanges.

In other fields, resource exchange theory has been used to understand the motivations of exchange and to track exchange patterns within groups [1,7]. Furthermore, resource exchange theory describes how similarities between types of resources influence the likelihood and appropriateness of exchange. For example, an exchange of money for goods is a more likely exchange than an exchange of status for goods, since money and goods are proximally located in Figure 1. As HCI researchers, we are constantly designing interactions, which broker the exchange of resources, being information, money or status. As such, HCI researchers could benefit from this lens. RET proves especially useful for explaining the exchange of multiple resources at the same time, which is currently an emergent trend on crowdwork platforms.

In addition to describing the types of resources for exchange, Foa also described the role of cultural institutions in resource exchange. According to Foa, cultural institutions such as markets and retail operations foster voluntary exchanges by bringing together combinations of individuals with reciprocal motivations for exchanging resources. For example, a retail operation brings together a seller (possessors of goods) with a buyer (possessors of money) in the correct setting for each role player to broker an exchange [9].

Within the HCI literature, we see a parallel to the literature on online communities as they have been defined as

“any virtual space where people come together with others to converse, exchange information or other resources, learn, play, or just be with each other” [11]. While the focal activity on crowdfunding platforms is often the exchange of financial resources to realize new ventures, in actuality crowdfunding platforms are virtual spaces where people come to together with others to communicate, exchange information, and learn. In many cases the project page remains a platform for project creator to remain in communication with financial backers until the completion of the project [10]. This research seeks to identify the exchange of resources and the mechanisms of exchange. When viewed through the lens of resource exchange theory, we can expand our understanding of what exchanges are possible with the ultimate goal of realizing the vision of creating new ventures to fuel the economy.

Methods

We conducted a survey of crowdfunding platforms to understand the exchange of resources and the mechanisms to facilitate this exchange. Specifically, we sought to answer the following questions:

- How are resources being exchanged?
- What are the roles assigned/available to participants?
- What resources are being exchanged between different roles?

Data

We initiated data collection for crowdfunding platforms by performing web searches on Google for “crowdfunding”, “microfinance”, “microloans”, “Kickstarter” and “microventures” in combination with the keyword, “platform”. Additionally, we searched news media for discussion of existing platforms. All searches took place be-

Descriptor	Sub-Descriptor	Representative Examples
1. Mechanisms	Mediated	Kickstarter, Sponsume, Kiva
	Unmediated	Independent, "The Cosmonaut"
	Hybrid	Passing the hat, Church offering
2. Directness of exchange	Direct	Kickstarter, IndieGoGo, Kiva
	Indirect	"The Cosmonaut," Requests for donations
	Inaccessible	MyC4
3. Individual Roles on Platforms	Requestor	Kickstarter, Kiva, CircleUp
	Respondent	Kickstarter, Kiva, CircleUp
	Community Member	All Platforms
	General Public	All Platforms
4. Requestor resources received	Money	All Platforms
	Information	Kickstarter, RocketHub
	Love	Kickstarter, RocketHub
5. Respondent resources received	Status	IndieGoGo
	Love	"The Cosmonaut", PetriDish
	Money	CircleUp, MyC4, Zidisha
	Goods	Kickstarter, IndieGoGo
	Services	Kickstarter, RocketHub
	Information	CircleUp, MicroVentures
6. Public & Member Resources Received	Information	"The Cosmonaut," MyC4, Kickstarter, PetriDish

Table 2: Results of the description of current Crowdfunding platforms

tween May and July in 2012. The search resulted in 81 platforms that met our defined criteria for crowdfunding.

Analysis

We developed our findings through an iterative process that began with examining the roles assigned to users on

each platform. We then used pairs of roles to examine possible interactions involving one-for-one resource exchange. We used a process of selective coding to flag features of the platforms that facilitated the exchange of resources, resources exchanged, and dyads of resource exchange [4]. After identifying all of the instances, we clustered features, resources, and dyads into conceptual categories. Simultaneously, we researched pertinent literature to understand existing theory in resource exchange and uncover related phenomena in social computing such as crowdsourcing (Quinn and Bederson) and online communities (Kraut and Resnick) [11, 14, 16]. Finally, we plotted the exchanges we observed on the RET model as a graphical means of representing a platform in terms of resource exchange.

Results

Our findings suggest that crowdfunding platforms support the exchange of all six resources described by RET: money, love, information, status, goods, and services and exhibit a variety of structures to facilitate exchange. We also uncovered four roles in online crowdfunding: requestors, respondents, members and general public. Below we list the results of our analysis (Table 2).

1. Mechanisms

Mechanisms describe how resource exchange is scaffolded, whether it's a through an established platform or a custom solution. Resources are exchanged through mediated, unmediated, and hybrid structures. The mediation structure category describes the process by which each platform mediates the exchange of resources. We categorized this into three categories:

- Mediated: where an established platform such as Kickstarter is used for the exchanges.

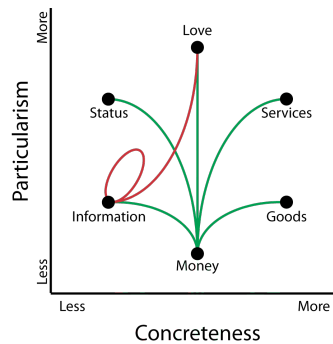


Figure 2: Resource exchange on IndieGoGo, plotted on the Foa and Foa model. Red lines represent exchange between requestors and the public, while green lines represent exchanges specific to a dyad of respondents and requestors.

- Unmediated: where a user creates a personal platform by using their own Web site in coordination with PayPal or other payment handler.
- Hybrid: A combination of the above two.

2. Directness of Resource Exchange

The directness of access to participants is an important factor in the evaluation of any web-based system, and, as such, is also an area of interest in the HCI community [5, 11]. Using this perspective, we categorized crowdfunding platforms based on how direct and transparent was the means of resource exchange for each of the respondents' respective contributions:

- Direct: where exchanges sent directly from one party to another and are transferred by the platform.
- Indirect: where the exchanges are screened and approved by the platform
- Inaccessible: where exchanges are not possible

3. Roles on Platforms

In many online crowdfunding platforms, users holding different roles afford different dyads of resource exchange. For example, on Kickstarter, only users who are defined as "project backers" can post a comment on projects, while on a competing platform, RocketHub, any member of the general public can post a comment on any project. To this end it is important that we describe the roles available to participants in online crowdfunding platforms. The roles we have identified are:

- Requestor: the person(s) who are running the crowdfunding campaign
- Respondent: a person who has contributed funds to a crowdfunding campaign
- Site Member: a person who has an account on a crowdfunding site
- General Public: all others

4. Requestor Resources Received

We investigated online crowdfunding platforms to look for the resources that are received by each of the roles. In each case we outline the possible resources received and a potential exchange example. For the role of the requestor we identified Money, Information and Love as possible resources to be received. This is graphically represented for IndieGoGo in Figure 2.

5. Respondent Resources Received

We can also categorize crowdfunding platforms by what resource(s) are exchanged by the respondents. We have identified example exchanges where respondents receive Information, Status, Love, Services, and Goods.

6. General Public / Community Member Resources Received

In nearly all cases the only resource received by the general public as well as community members was information. Most often, the general public was afforded the ability to view project pages (information) in the same manner as community members.

Discussion

As crowdwork platforms get more complex we can use the lens of resource exchange to describe the exchanges occurring on individual platforms. We present an initial graphical representation of resource exchange for new crowdwork platforms.

The graphical explanation in Figure two illustrates why we see crowdfunding as a new kind of crowdwork platform. Whereas crowdwork has traditionally been a service for money exchange, crowdfunding presents itself as a more complex set of exchanges, introducing new roles and new possible dyads of exchange. As the role and

scope of crowdwork expands, we would expect that the possible dyads of exchange will expand as well. For example, imagine a Web site where individuals exchange services for goods. As such, an individual's contribution to a crowdfunding campaign might be the completion of a task such as address verification, and in return would be compensated with good. Using RET allows us as HCI researchers to explore possible new avenues for fostering new crowdwork interactions as well as designing new crowdwork applications. Going forward we will use RET to examine new exchange dyads to drive future design decisions.

Conclusion and Future Work

We look forward to applying the framework for analysis we discussed here to new and emerging crowdfunding platforms. We wish to build upon the graphical representation of resource exchange and extend its application to other, crowdwork platforms. In the long term, we look forward to exploring the design space of crowdwork platforms, using the lens of RET as a guide. We are in the process of understanding the space of crowdfunding platforms online. To this end, we adopted resource exchange theory as a lens to explore the resources, mechanisms and roles that exist on the current generation of online crowdfunding platforms. Going forward, we see this lens as a means for examining a broad range of crowdwork platforms and the design of the platforms therein.

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