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Understanding What Motivates Participation on Crowdsourcing Platforms

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Abstract

The need for innovation has become a top business priority for many Chief Executive Officers.Organizations have traditionally relied on their internal staff and upon traditional marketing agencies for new innovative ideas to handle the constant stream need for new products and services. One approach that organizations are now using is 'crowdsourcing'. Attracting a large group of people to actively contribute ideas that will provide answers to an organization they are not employees remains a big issue. An understanding of what attracts the most effective contributors is therefore crucial. Crowdsourcing is an emerging field and it is still not well understood by a number of organizations in different countries and South African organizations are not an exception. To our knowledge, much of the literature has little mention on crowdsourcing initiatives in South Africa and also little on studies that have been conducted on platforms with a significant crowd workforce and project work representative of South African context. The focus of the paper is reviewing the literature and exploring some of the factors that should be considered when planning to outsource work to a crowdsourcing platform in order to attract contributors. A conceptual model is presented and some propositions for testing the model are presented.

Keywords: crowdsourcing, motivation, outsourcing, open call

Introduction

Crowdsourcing projects can span over long periods of time coupled with some tasks that may be laborious or repetitive, motivation of participants does not remain the same during this process. At different times of the process motivation varies as a result of different tasks being worked on and is salient during some activities and at its lowest during other activities. This means motivation of participants in crowdsourcing projects changes over time. Keeping participants motivated and engagement at all times during crowdsourcing projects becomes a challenge as this involves individuals from diverse backgrounds.

The new technological advances of the internet and its accessibility have seen the growth in internet communities. This has subsequently seen the coming together of people from different geographical locations and varying skills. Crowdsourcing activities have exploded in use in parallel to these developments of the internet and web tools.

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An understanding of what motivates participants in crowdsourcing projects becomes very important and will be the main focus of this paper.

What is Crowdsourcing?

Different researchers have come up with different definitions of "crowdsourcing" basing their definitions on different practices and contexts. The first definition coming from Howe was coined in 2006 and later revised in 2008. In his first definition he defined crowdsourcing as a way of taking a task that was previously done by an organization's employee to a large network of potential laborers in the form of an open call. From this first definition the key aspects will be using an open call to connect with potential large network of potential laborers. However later on Howe further clarified his definition to include the fact that it will only be crowdsourcing once the organization fabricates it, mass produces it in high quantity and sells it (Howe, 2008). From this further definition, it is however not clear whether 'fabricate' is only restricted to production of physical goods or can be extended to making information available to a large audience without any reproduction costs over the internet.

Another leading researcher in the area of crowdsourcing Brabham has also his own versions of crowdsourcing. One of his definitions refers to crowdsourcing as being a web based business model for harnessing creative solutions of a distributed network of individuals through an open call for proposals (Brabham, 2008). Brabham also argues that his definition of crowdsourcing as a web based business model can also be used as a problem solving model thus addressing problems in other non-profit areas such as social and environmental problems.

Estelles and González listed 32 definitions from different researchers from their study and came up with a comprehensive definition based on eight characteristics of crowdsourcing;

> *"Crowdsourcing is a type of participative online activity in which an individual, an institution, non-profit organization, or company proposes to a group of individuals of varying knowledge, heterogeneity, and number, via a flexible open call, the voluntary undertaking of a task. The undertaking of the task, of variable complexity and modularity, and in which the crowd should participate bringing their work, money, knowledge and/or experience, always entails mutual benefit. The user will receive the satisfaction of a given type of need, be it economic, social recognition, self-esteem, or the development of individual skills, while the crowdsourcer will obtain and utilize to their advantage what the user has brought to the venture, whose form will depend on the type of activity undertaken."*
> (Estelles-Arolas & Gonzalez-Ladron-de-Guevara, 2012)

We agree with the integrated definition provided by Estelle´s and González as this definition caters for the almost all different applications of crowdsourcing. An important point to note also is that the many different definitions from different researchers have been as a result of the diverse application of crowdsourcing in different areas.

Origins of Crowdsourcing

The term crowdsourcing could have first been mentioned in an academic paper in 2008 (Brabham, 2008) but open call contests are not new. In the 18th century an open call to the troubling longitudinal problem was extended to external experts by the British Navy. It was one of the most challenging scientific problems that saw a prize money of £20, 000 being offered to anyone providing a reliable solution. Despite Sir Isaac Newton having mentioned that only astronomical solution was the feasible method, the ultimate solution came from an unexpected unknown carpenter and clockmaker and his solution did not rely on astronomy (Spencer, 2012). This shows that crowdsourcing has been in existence long before the existence of the internet.

Advantages and Disadvantage of Crowdsourcing

Different researchers have debated the advantages and disadvantages of crowdsourcing work. In a study that focused on designing a framework that addresses the challenges in crowdsourcing work in different areas, Kittur et al. (2013) argued that crowdsourcing will continue to unlock new career opportunities in the cyberspace for skilled work but also highlighted that because of intellectual framing, crowdsourcing will become focused on low cost and exploitative labor. Comparing crowd work to traditional workplaces, another group of researchers, Silberman, Irani, Tomlinson, & Ross (2010) noted that there will be diminishing visibility and communication that has the potential of lowering the motivations of crowd workers and consequently affect the output from crowdsourcing. With very weak bonds and enforceable contracts, crowd workers have little power than in traditional workplaces and this can affect crowd relationship, workers' lives and trust which is one key thing in crowd work.

For tasks that require 24 hours of input, crowdsourcing becomes the ideal solution. Crowdsourcing supports flexible pool of resources and helps alleviate scarcity of staff in some geographical locations. In the case of covering news 24 hours, the small core reports for CNN's i-Report would not manage to keep news reporting updated in all the different corners of the world. As such they can rely on news content supplied by online contributors in different geographical locations where the actual events will be happening. CNN's i-Report can just work on verifying and aggregating the content from online contributors. In this example, crowdsourcing makes use of online contributors located in different time zones thus enhancing the benefits of crowdsourcing. Furthermore it creates prospects for earnings in regions of the world where native economies may be stagnant. Crowdsourcing initiatives are usually delivered in a short time frame.

Whilst some people see opportunities for an income being created through crowd work, others are concerned with exploitation that has come with this phenomenon. Average hourly wages being offered on platforms like Mechanical Turk amount to US$2 and this is without any other benefits, worker protection or legal protection of the job and regarded as extremely low wages and exploitation of labor (Ipeirotis, 2010).

At the core of crowdsourcing is opening up the contest to anyone in the hope of getting exceptional, undiscovered talent from the large network of community contributors, but enormous number of contributors show up who may not be suitable or qualified for the available task to be solved. In paid crowd work, workers can submit low quality submissions in a way to try and generate more income. An example is on Mechanical Turk where an estimate of 30% or more of the submissions may be low quality (Bernstein et al., 2010). Selecting the best solutions from the vast amount of submissions in some instances can be a daunting task likened to looking for a needle in haystack. However, besides this challenge there are ways to assist in lowering this shortcoming whilst at the same time improving the chances of success with crowdsourcing (Parvanta, Roth, & Keller, 2013).

From this discussion it is evident that crowdsourcing can be a double edged sword that can enhance or diminish different aspects of our lives in society. However, despite some of the disadvantages noted in this discussion, it is the purpose of this study and other researchers to help unearth more of the advantages and positives of crowdsourcing through an understanding of what motivation is required that will lead to a sustained crowdsourcing initiative. The findings of the study will help engineers, managers, designers and scientists in designing the optimal incentives that will not only bring the best results but will also sustain crowd work.

Crowdsourcing Taxonomy

Crowdsourcing System

Crowdsourcing research has been conducted in many areas and one of the ways of looking at crowdsourcing is to view it as a system comprising of different components interacting in different ways. There are two types of performing crowdsourcing work. According to Zhao and Zhu (2012) crowdsourcing consists of three main components which include the organization that is seeking a solution (solution seeker) which is usually the one that initiates the process of crowdsourcing, large network of individual workers (the crowd or participants) which serves to provide solutions in response to a task and the third component being the intermediation platform (crowdsourcing platform) which acts as the link between solution seeker and the crowd. Furthermore, Kittur et al. (2013) also argued that a crowdsourcing platform is vital in managing the large network of crowd workers, tasks and solution seekers. In this first instance the core business of organization that is acting as the intermediary is to provide a link between the crowd and other organizations seeking solutions from the crowd. The core business of the intermediary company in this case is managing the crowd and organisations seeking external crowd participation and functioning as a market place. Crowdsourcing intermediaries act as platforms that network organizations and help them overcome skills shortage and lack of resources through linking them with suitable counterparts at the same time providing essential facilities for crowdsourcing activities (Zogaj, Bretschneider, & Leimeister, 2014). This study will be focusing on this setup which has an intermediary organization handling all the crowdsourcing management issues on behalf of the seeking organization.

However, some organizations whose core business is not crowdsourcing can manage their own crowdsourcing work that involves managing the crowd on their own (internal crowdsourcing platform). An example of such a setup is Dell's IdeaStorm community which is used to harness ideas from its online users (Saxton, Oh, & Kishore, 2013). In this scenario there are only two actors; the organization seeking solutions and the crowd.

Figure 1 shows the two different scenarios just discussed.

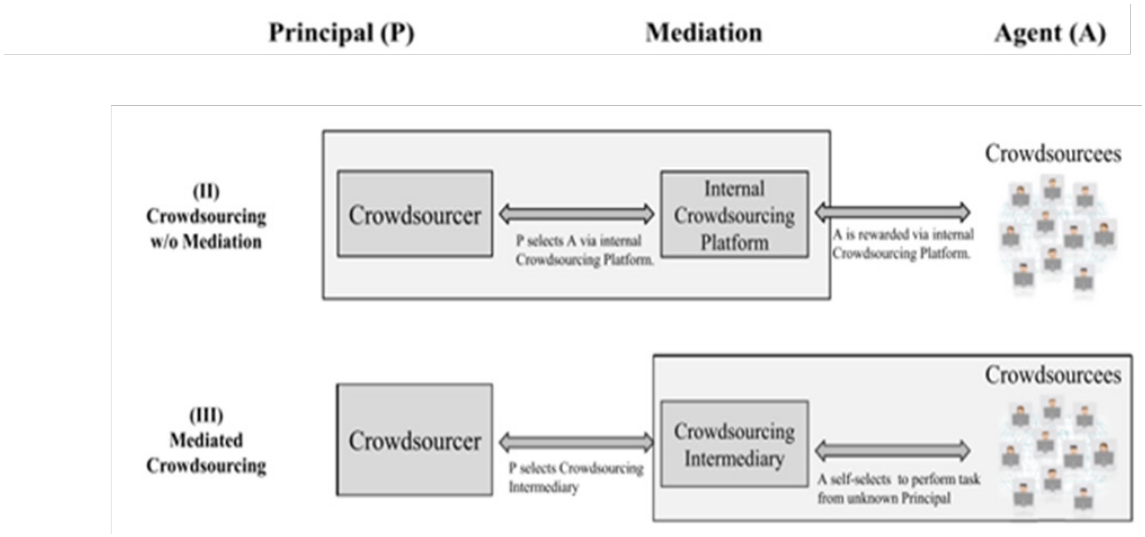

Figure 1 - Roles and mediation in crowdsourcing initiatives
Source – Adapted from Zogaj et al. (2014)

Crowdsourcing Categorisations

Crowdsourcing is being used across different industries and as such there are different implementations to suit the different requirements. Different categories have been identified to define the different kinds of crowdsourcing. Various researchers have provided different alternative categorizations of crowdsourcing.

Zhao and Zhu in 2012 conducted a study on the current status of crowdsourcing research and analyzed 55 academic articles. In their study they reported that crowdsourcing can be better understood by examining both contexts and functions (Zhao & Zhu, 2012). Context being defined as being either business context or non-business context and function focusing on part of the product or service that is being crowdsourced (Vukovic, 2009). On the business context side this involves crowd work for profit making organizations whereas on the non-profit context includes organizations such as libraries, research and development, public libraries or citizen science (Savage, 2012). Function being further categorized by the nature and granularity of the task (Rouse, 2010) Figure 2 shows some of the examples of these categories.

Context \ Function	Design & development	Idea & consultant	Test & evaluation	Other
Business	99Designs	BBNM	Crowdspirit	Poptent
	Threadless IStockPhoto	Marketocracy Squadhelp	Netflix Prize	MusikPitch
Non-business	Mass Mapping	TunedIT	UTest	Kaggle
	PeoplePerHour	Acsys Interactive	Mob4Hire	EditZen

Figure 2 - Typology of crowdsourcing application. (Source: Zhao & Zhu, 2012**)**

Another dimension to look at the different categorization (Zogaj et al., 2014) was to categorize them by the functions that they seek to address. They came up with the following functions; innovation development, design, development and testing, marketing and sales. This classification matches with the one from crowdsourcing.org which is one of the main sources of crowdsourcing insights and research. Some of the interesting categories include the labor category which represents crowd work that largely rely on crowd labor to complete repetitive and labor intensive tasks that cannot be done by a computer and can be broken down into smaller tasks such as sentiment analysis of tweets containing slang, language translation or other cultural aspects that cannot be processed by a computer algorithm. Crowdfunding category uses an open call to source funding for a project initiative. The project to be funded can range from music production, refurbishment of a school, humanitarian call to a malaria eradication project. This is a common place for new business start-ups and small entrepreneurs.

Figure 3 shows the classification by Zogaj et al. (2014).

Function	Intermediate	Description	Source
Innovation development	InnoCentive[a]	InnoCentive is an intermediary that organizes competitions for companies that seek for solutions in a specific field - often in areas like product development and applied science. The crowd predominantly consists of engineers and scientists that work alone or in teams and compete for cash payments or prizes offered by the crowdsourcer	Innocentive.com (e.g., Lakhani et al. 2007; Jain 2010)
	Quirky[b]	Quirky is a crowdsourcing intermediary which is specialized on innovation (especially new product) development. Crowdsourcers can ask for specific solutions regarding an existing product, or they can ask for ideas, prototypes and concepts with respect to completely new products. Within the community, quirky users (crowdsourcees) are able to collaborate regarding a specific idea or solution	Quirky.com (e.g., Paulini et al. 2012)
Design	Threadless[a]	Threadless is a popular crodsourcing platform for the design of T-shirts. The designs are independently created by crowdsourcees. However, the Threadless community has the chance to evaluate submitted designs. In addition to the ongoing open call for design submissions, there are several design challenges centered around specific themes	Threadless.com (e.g., Brabham 2010)
	CrowdSpring[b]	CrowdSpringt is a crowdsourcing platform for graphic and web design. Here, crowdsourcees can work together to design different logos, ads or websites for crowdsourcers. Within one project, on average 110 submissions are posted by crowdsourcees	Crowdspring.com
Development and testing	TopCoder[a]	Software programming tasks are posted as contests. The developer of the best solution wins the top prize while other participants walk away with smaller rewards and garner skill ratings that can be included on their résumés	Topcoder.com (Brandel 2008)
	PASSbrains[b]	PASSbrains offers a range of testing types for various software applications. It covers multiple platforms, devices, system configurations and country or region-specific aspects. PASSbrains uses a global community of professional software testers	Passbrains.com
Marketing and sales	LeadVine[a]	At LeadVine companies can use the crowd for supporting their sales activities. The crowdsourcers post kinds of sales leads they desire, and pay their stated referral fee to the person who provides the lead. Hence, the community acts like a sales force	Leadvine.com (Faste 2011)
	Chaordix[b]	Chaordix is an intermediary that provides crowdsourcing services for various kinds of tasks related to marketing activities, such as brand collaboration, marketing research, or new product development and promotion	Chaordix.com

Figure 3 - Classification of Crowdsourcing Initiatives. (Source: Zogaj et al., 2014)

The nature of task can be used as another way of classifying crowd work. Rouse (2010) defined the nature of crowdsourcing work as falling into three categories namely simple, creative and complex tasks. Simple tasks will have crowd work that is of relative low complexity and does not require specialized skills or education to be tackled. This includes tasks like copy and pasting pictures or text, classifying images of vehicles as either right-handed or left-handed, data collection or rating (Parvanta et al., 2013). Creative task category was defined as having tasks that are neither complex nor simple and require some skill like logo design or t-shirt design. The last class was defined as complex and involves specialized skills and education in sophisticated domains like software development or aircraft engineering and requires deep knowledge and understanding in the specific areas. Likewise, Schenk and Guittard (2009) also defined the same groups based on the nature of crowd work as another way of classification similar to Rouse (2010).

Related Work

Outsourcing

Some researchers have defined crowdsourcing as a form of outsourcing and drew a lot of similarities between the two. Outsourcing is defined as the decision by a company to contract a task to a third party vendor who in exchange provides and manages the task or service for financial gain over an agreed period of time (Kern, 1997).

In a study on trying to unpack and get a better understanding of crowdsourcing, Rouse (2010) defined outsourcing as the act of assigning work or tasks to an external service provider. In the definition the author further explains outsourcing being categorized into three areas mainly simple outsourcing, outsourcing of IT services and outsourcing of business processes. From this the author takes crowdsourcing as a particular form of outsourcing. This definition shows that there are areas of similarities however there are other key differences that exist between the two and as such not all motivations from outsourcing are transferable to outsourcing. One of the key differ-

ences between outsourcing and crowdsourcing is that prior to rewarding or paying the person who has completed the task in crowdsourcing that person is not known.

Studies on Motivation and Engagement

Understanding what motivates crowd workers to participate always pose a consistent challenge to the design of crowdsourcing platforms. Jakob Nielsen conducted a study on online communities and concluded that only a small fraction of the users is actually involved in contributing the majority of the contributions. The majority of the users only 'lurk' in the background (Nielsen, 2013). It becomes very useful that the motivators to participation need to be deeply understood. This understanding of motivation requires also an understanding of the psychological dimensions of motivations.

A lot of studies have been done on motivation in different contexts. Deci and Ryan in their research on human motivation outline and present the Self-Determination Theory which is an empirical theory that differentiates between intrinsic and extrinsic motivators. Their theory addresses also the social aspects that can either enhance or diminish the different types of motivation. Their theory has been used in studying online human behavior in different communities. They define intrinsic motivation as performing a task for its inherent contentment rather than for some separable consequence (Ryan & Deci, 2000).

Crowdsourcing in South Africa

Although crowdsourcing has been cited as a new phenomenon, several companies in South Africa have joined in the crowdsourcing movement. There has been very little that has been written about some of the crowdsourcing initiatives that have been accomplished in South Africa. Some of the following organisations that have been involved in crowdsourcing initiatives include BMW, Vodafone, FNB Premier Banking and Capitec Bank through a crowdsourcing intermediary called Idea Bounty. All these companies were seeking ideas from world over for their South African market and turned to crowdsourcing for the solutions. Capitec Bank put up an open call for one print and one banner advert concept and put an incentive of U$5, 000. More than 600 submissions were made and the bank had to select the best solution and the reward was awarded to the winning concept. Looking at these organisations the award they offered on average was U$5, 000 which is roughly around R50 000. However winning did come with some bit of controversy as some of the participants were asking the choice and criteria of the winning concept (Wyngaard, 2014). This makes the crowdsourcing initiative no different from other contests. Since crowdsourcing has been described as being in its infancy an understanding of the motivators of participation will help in future work by some of these organisations not only to improve the process of selecting the winning contribution but to keep crowd workers fully engaged and motivated to contribute more. This makes our study vital at this point.

IBM working with some local South Africa city councils launched a crowdsourcing initiative where citizens participate even via mobile phones to report water leaks, faulty water pipes or general conditions of water facilities. The project was launched in September 2013 and will see the change on how local authorizes and citizen participate in matters that affect their day to day lives. Another marketing type of crowdsourcing initiative in South Africa that received a lot of support is the Carling Black Label challenge which relied heavily on the huge support base of South African soccer fans. In this crowdsourcing initiative, the fans were presented with a chance of selecting the players they wanted to see play through peer vetted ratings. This was done for the two soccer giant team in South Africa. More than 11 million votes were recorded for player vetting and the initiative has now become an annual event due to its popularity.

These examples show that there will be a natural increase and consequently increase in competition for crowd workers as the numbers of crowdsourcing intermediaries emerge and it will only be those platforms that understand what motivates crowd workers and how to engage them that will thrive. Furthermore, crowdsourcing intermediaries that will manage to align the motives of the crowd workers with long term goals of crowdsourcing initiative will win.

Propositions

As the accessibility and affordability of internet access continues to improve in South Africa and across the world, so will be the amount of crowdsourcing initiatives on the internet. In addition to this, there will be an increase in the competition for crowd workers. An understanding of motivation that will keep the crowd engaged and contributing becomes vital.

It is from this background that the author proposes the following to be tested empirically. Comparing differences in motivations by studying engagement when the following incentives are presented to the crowd workers;

- **Proposition 1:** 10 South African Rands in cash;
- **Proposition 2:** 10 South African Rands in a tangible reward (cup of coffee)
- **Proposition 3:** 10 South African Rands in a common good (all money collected and given on charity or something is done locally).

Conclusion

Motivation of participants poses a huge challenge on online communities and crowdsourcing is not an exception. With the enhancement and development of internet technologies more online activity is increasing. This in turn will see more organisations turning to online communities for solutions. An understanding of crowd motivation and engagement becomes vital and will help in knowing when likely a participation is about to disengage and help in correcting or creating a conducive environment for participation. This study will help organizers and architects of crowdsourcing projects to be aware of what motivates the crowd and be able to provide a mix of conditions that the crowd will thrive. In aggregate literature suggests that the effectiveness of crowdsourcing is significantly influenced by the state of worker attention and engagement.

Although crowdsourcing can be said to be in its early stages it is worth assessing with an open mind the unexpected applications that can benefit an organisation. Organisation should start fostering a culture of experimenting with crowdsourcing keeping security, privacy and compliance risks low.

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