

## **Crowdsourcing: personal values and self-efficacy as antecedents to creative behavior**

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### **Abstract**

Creative crowdsourcing and crowdsourcing for innovation initiatives (hereinafter called CCI) are a business model that allows companies to leverage the crowd's skills and know-how through online platforms where the individuals (solvers) voluntarily supply them with ideas and solutions. CCI initiatives are similar to open contests and depend heavily on submissions that actually solve the posted challenges. Despite the frequent use of incentives (financial and others) CCI dynamics relies above all on the individuals' predisposition and motivations.

Understanding the impact of personal values and self-efficacy on this kind of initiatives will decrease the level of uncertainty caused by the lack of any previously relation, link or contact between the companies and the solvers (which are anonymous). Certain studies point to a correlation among some values and self-efficacy with creativity. While it is difficult to change personal values, self-efficacy is a well-documented approach to change behaviors.

In order to answer the research question "How do the motivational antecedents affect the participants' creative behavior in CCI initiatives?" the research will pursue the following topics:

- assess solvers' values;
- evaluate their self-efficacy levels;
- establish connections between the solvers' values and self-efficacy.

Given the need to capture the phenomena as a whole this investigation will adopt a qualitative approach based on netnography methodology. Considering the research question and the theoretical background based on values and self-efficacy, it will adopt a preliminary step comprising an anonymous online questionnaire issued to creative solvers. The research will follow with online interviews hoping to seize the interviewees' experiences, in order to draw all possible insights related with their CCI initiatives engagement.

**Keywords:** crowdsourcing, innovation, creativity, self-efficacy, values

## Introduction

CCI innovation initiatives are a specific kind of crowdsourcing whose activities or tasks – usually complex – seek unique solutions or ideas. Companies, instead of allocate internal resources to accomplish some of their creative or innovative needs, may choose a CCI approach which is a business model that allows them to fulfill those purposes with a considerably lower effort and investment (cost, time and personal).

Usually through an open call, companies (also known as **seekers**) publish their problems and appeal for the crowd's skills and know-how: the individuals of the crowd (the **solvers**) – who are anonymous – voluntarily supply them with ideas and solutions.

CCI frequently uses financial and other material incentives. Nevertheless, CCI dynamics depends mostly on the individuals' predisposition and motivations (Bayus 2010; Cheshire 2008; Leimeister 2009; Lakhani 2007; Malone 2009; Preece *et al* 2009).

Creativity is one of the core issues in CCI domain since solvers are supposed to supply seekers with novel and useful ideas or solutions. Creativity is a well-studied field and it focuses mainly on tasks' performance. Therefore, creativity is very much related to the individuals' motivations. (Amabile 1996; Miron *et al* 2003; Shalley *et al* 2004)

Some of the research on CCI domain follows the usual background on open source research thus focusing on motivations. However, according to the literature, motivations fail to clarify CCI cases since they happen to be very similar across so different initiatives (Bayus 2010; Brabham 2008; Lakhani 2007; Leimeister 2009; Oreg 2008) Furthermore, some of the CCI motivations' research found counterintuitive effects between rewards and creativity, a phenomenon also perceived and thoroughly discussed on psychology and behavioral economics (Amabile 1996; Ariely 2005; Frey 2001).

Personal values also comprise motivational characteristics however in a more lasting manner. Moreover, drawing on Schwartz Human Values Theory (1994), they sustained widely no matter the culture, and they also give a great understanding on motivational behaviors.

Whereas personal values are long-lasting and hard to change, self-efficacy is a well-documented approach to change behaviors and a very reliable measure of one's effort and engagement in an activity. Self-efficacy (Bandura 1997) is the self-belief of being able to perform something therefore deeply related to concrete tasks.

Finding the interplay between values and self-efficacy will provide an effective way to improve CCI online environments since self-efficacy beliefs can be triggered from external sources (incentive, feedback and reputation mechanisms) and used to change solvers' behaviors aligning them with the CCI initiatives' goals.

## Defining crowdsourcing

Crowdsourcing is a growing business strategy that makes use of the global connectedness network of human resources available through the web. The underlying idea beneath this new way to get work done is that anywhere, at any time, someone unknown with some kind of skills and some extra time is willing to do some tasks and activities, not just for the rewards but also for other diverse kind of motives.

Jeff Howe (2008), who popularized the term, divided crowdsourcing into four main categories based on the crowd's type of contribution:

- 1 Crowd wisdom comprises initiatives carried out to obtain knowledge outside the organizations' boundaries.

- 2 Crowd creation is related to user-generated content which can be used as a business strategy to find new ideas and solutions.
- 3 Crowd voting covers all the initiatives where users rate or vote for something.
- 4 Crowdfunding: is a fast-growing trend which relies on monetary crowd contributions to specific projects intending to match potential lenders to entrepreneurs with financial needs.

Tasks that can be crowdsourced range from simple to complex ones. Simple tasks are often related with actions like label, classify, identify. They are usually timeless and reward with very small payments. Companies use this strategy to achieve quickly a large amount of information. On the contrary, complex tasks demand for more cognitive effort, skilled behaviors and are typically related with higher rewards. Between simple and complex tasks there are a lot of activities' possible combinations with moderate rewards and that's where creative and innovative tasks commonly remain (Schenk *et al* 2011).

Material or financial rewards are not an absolute requirement for any of those different kinds of tasks. Crowdsourcing cases as Wikipedia illustrate non-rewarding initiatives covering non-routine tasks. Other kind of non-rewarding and non-routine tasks are scientific one's – a.k.a. citizen science – where users (amateurs and non-professional scientists) are supposed to help scientific research (e.g. gather or analyze data). Dictionaries, translators and other similar tools combine machine-learning algorithms with users' feedback making it possible to digitize large amounts of words in an accurate and timely manner.

CCI initiatives encompass a diverse kind of creative and innovative tasks relying mainly on submissions' quality and on solvers' creativity (Schenk *et al* 2011).

### **Using netnography to study crowdsourcing phenomena**

Netnography was coined by Kozinets as the online version of ethnography and it is a method especially used on marketing domain to gain insights on consumer behaviors thus suitable for a cultural-oriented study of online interactions (Kozinets 2001).

This methodology is appropriate for the present research as it allows collecting and analyzing data from crowdsourcing initiatives in a flexible, multi-method and iterative manner requiring constant reflection and modifications when necessary. (Kozinets 2001; Loureiro *et al* 2012)

Netnography offers means to witness how things naturally occur, allowing different levels of observations according to the researchers' degree of immersion. This is a method which entails researchers to live or work like those they're studying (Kozinets 2001) also with the purpose of assessing the veracity of the participants' testimonials (Loureiro *et al* 2012).

Considering that crowdsourcing comprises not only a new online cultural phenomenon but also an organizational one, netnography is perfectly suited to study this particular crowd behavior and ultimately answer the research questions.

According to Kozinets's guidelines, netnography can be planned on the following phases:

1. learn about the research phenomenon, formulate the research questions and define the source
2. observe and interact with individuals
3. analyze and interpret, in an iterative way, through coding practices; synthesize and contextualize
4. research ethics: disclose research identity, ensure individuals anonymity, give research feedback and obtain permission before publishing results

5. give feedback to individuals who participated in the research
6. write the findings, reporting process, difficulties and limitations

Netnography methodology put emphasis on immersion and ethical issues on using online data. Since the present research doesn't have access to the solvers' historic data, their anonymity is granted by default. The first data collection (a questionnaire) will openly address this issue.

The subsequent data collections will be based on interviews which are also intended to adopt the same overt approach. Online interviews, without a face-to-face interaction, may fail some non-verbal cues but, on the other hand, interviewees may feel less uncomfortable since they don't see the interviewer.

During the online interviews, it is expected to establish some sort of connections with the interviewees: one of the researchers has also some solver's experience which can facilitate some understandings.

## Research design

This research will adopt the Netnography methodology, a qualitative approach which allows the construction of "grounded knowledge" inductively derived from the reality. This methodological approach is suitable because CCI is a new study domain with unique characteristics through which it is aspired to develop a theoretical explanation based on empiric observations.

On CCI context, creative tasks are a critical issue. Creativity is the ability to generate new and potentially useful ideas (Amabile 1996) resulting from a combination of personal and contextual factors (Amabile 1996; Miron *et al* 2003; Shalley *et al* 2004). As a personal characteristic, creativity is deeply related to one's motivations (Amabile 1996; Miron *et al* 2003; Shalley *et al* 2004); besides, contextual factors such as the way tasks are assigned has great impact on individuals' engagement and their creative performance.

As already mentioned, motivations do not enlighten CCI domain since they posit counterintuitive effects when creativity and rewards (material or not) are at stake (Amabile, 1996; Ariely, 2005; Deci *et al* 2008, 2000; Frey 2001).

Looking for more stable motivational constructs, personal values (Schwartz 1994) stretch a long-lasting and comprehensive view of human behavior. According to Schwartz's theory, values occur in a continuum and dichotomy way: one cannot pursue some value and the opposite one at the same time but he is instead very likely to pursue one more similar value.

As proposed by Kasof *et al* (2007) "*creative behavior is related holistically to the entire integrative dynamic pattern of value types identified by Schwartz (1994)*". Following their findings creative behavior is actually promoted by the self-direction, stimulation and universalism value types and additionally the creative behavior is inhibited by the tradition, conformity and security value types (Kasof *et al*, 2007). On another empirical research (Dollinger *et al*, 2007) creativity appears once more as a core value significantly correlated with self-direction, universalism and stimulation Schwartz's values.

Self-efficacy is a motivational construct able to assess the way solvers interact with tasks. Self-efficacy "*influences individual choices, goals, emotional reactions, effort, coping, and persistence.*" (Gist *et al* 1992). Moreover, following Tierney *et al* (2002), self-efficacy beliefs also influence employee creativity, since the results of their empirical study point to a correlation between self-efficacy and creativity.

Reasoning from the integration of the reviewed literature on creativity, values and self-efficacy and considering the research problem the empirical work will be implemented as follows.

This research is still at an early stage. In order to answer the research problem, the empirical main goal is to examine whether certain motivational characteristics do make people more creative, how and why through a combination of a survey and netnography techniques.

The first stage is based on a preliminary case study. Following a netnography plan, since research question is already defined, next step consists on selecting the CCI initiative to be studied. This is an ongoing phase: this preliminary case study will be undertaken on a Portuguese CCI initiative chosen due to the CEO readiness and for its representativeness of this kind of platforms. This choice was made after several CCI initiatives' observation and after one of the researcher's online participation as a solver (this engagement took place already with research purposes since it was undertaken to try out all the process flow and related events). The researchers' degree of involvement will evolve from a combination between observation and participation, synchronous and asynchronous.

The questionnaire (issued only to creative solvers) will have a twofold role: it will be an overt approach to anonymous respondents with a view to asking for their additional availability for a future interview; at the same time, it will be used to gather data in order to triangulate later with those interviews' content.

The questionnaire includes: the full version of the Schwartz's Portrait Values Questionnaire which comprises 21 questions about personal values; 15 self-efficacy questions built following Bandura's orientations (1997); finally, 8 socio-demographic questions and related matters, such as some about the use of computer and CCI initiatives.

Due to policy limitations (access to solvers' personal information is denied for legal issues), the mechanism to elicit questionnaire responses will be an e-mail for all the solvers who submit a solution to the selected CCI initiative, inviting them to answer the questionnaire, participate on interviews or to do both of them - questionnaire respondents and interviewees will self-select themselves for the purpose.

The questions of the interview will be outlined according to the research questions. The first interview will be guided by open questions which will allow collecting a testimony of the participants' own experience (Grams 2001). The analysis and open coding of each identified idea in this first collection will enable to narrow the questions according to it.

This iterative process will be repeated until the emerged concepts stand an overall explanation of the phenomenon. The systematic collect and analysis of data will occur simultaneously. The interviews should be as many as necessary to clarify all the emerged ideas and until the end of the appearance of new relevant concepts (Kozinets 2001).

One of the netnography's key issues is about the researcher's identity since it's possible to obtain a lot of online data without any permission. In the present research all the gathered data will result from an overt approach.

Although the respondents have non-verifiable identities the reliability of their responses can be considered trustworthiness: they engage on questionnaires and interviews after participating on a CCI initiative and all of them in a voluntary manner. Since any of those actions assume the expense of some time and effort it is reasonable to consider them reliable.

Since the selected CCI initiative faithfully reproduces that category of crowdsourcing it is also expectable to obtain accurate and consistent data. Recognizing the limitations of just one source of data, it is intended to replicate this design case study a few more times. Additionally it is being developed a website specifically for the present research purposes hoping to reach solvers from other diverse sources (and not just from specific case studies) with the purpose to cover a broad range of respondents for a later results' comparison

## **Conclusions**

Companies and organizations may undertake a CCI approach by two means: broadcast their challenges on intermediation platforms or, alternatively, on platforms of their own. Any of these strategic approaches cope and may benefit from the insights on solvers' behavior since they will allow aligning feedback and reward mechanisms to their predispositions.

Connecting this work to research focused on other important actors on this domain (such as the crowdsourcing intermediaries) will provide practical utility and an added value to the companies that are directed towards adopting CCI as a business strategy.

From this research, it is expected to achieve an in-depth understanding on CCI initiatives and to obtain empiric evidences on the existence of psychological background of the individuals with influence on their creative performance.

This conviction is reasoned from studies that point to a correlation among certain types of values, self-efficacy and creativity. The practical implications of these results are the opportunity of employing incentive mechanisms fitter to the predominant crowd's profile and promoters of creative, effort and persistence behaviors.

## **Acknowledgements**

This study is carried out under the scope of the Algoritmi Center research where other crowdsourcing investigations are being done and to whom it is deserved to thank.

This work is funded by FEDER funds through the Operational Competitiveness Programme - COMPETE and also by national funds through FCT – Fundação para a Ciência e Tecnologia under the Project: FCOMP-01-0124-FEDER-022674.

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