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Trait motivations of crowdsourcing and task choice: A distal-proximal perspective

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ABSTRACT

Research on crowdsourcing participation has identified the four primary motivators to be payment, job-market signaling, competence development, and fostering social affiliation. These motivators have mostly been understood in terms of the intrinsic-extrinsic perspective, and participation has been treated as a black box. This study extends understanding of the primary motivators by clarifying their differential effects in terms of the distal-proximal perspective of motivation, and distinguishing among participation in (i.e., choice of) unstructured tasks, high-commitment tasks, and interdependent tasks. Findings based on a survey of 283 crowdsourcing participants indicate that those motivated to develop competence (i.e., learn new knowledge and skills) tend to choose high-commitment tasks requiring more effort and therefore opportunities to improve ability, rather than focusing on task structuredness or interdependence. Those who are motivated to foster social affiliation tend to focus more on choosing highly interdependent tasks requiring coordination and collaboration with other participants. Those motivated by payment tend to focus on demonstrating competence relative to others and are therefore more likely to choose structured tasks with clear, comparable output. These findings enhance the conceptual clarity of different motivators, and inform crowdsourcing organizers on the motivator to focus on based on task characteristics.

1. Introduction

Crowdsourcing is described as "the new pool of cheap labor: everyday people using their spare cycles to create content, solve problems, even do corporate R & D" (Howe, 2006, p. 1). Crowdsourcing tasks ranged from simply completing assembly-like piecework (e.g., data coding, transcription), to distributed problem solving enlisting a multitude of humans with varying knowledge and skills (e.g., research and development, accounting, product design, citizen journalism; Doan, Ramakrishnan, & Halevy, 2011; Estellés-Arolas & González-Ladrón-de-Guevara, 2012; Saxton, Oh, & Kishore, 2013). Tasks are typically posted on intermediary platforms (e.g., Amazon Mechanical Turk, InnoCentive) or organization-hosted websites (e.g., My StarBucks Idea, LEGO Ideas) to access and harness a large and diverse crowd through the Internet (Saxton et al., 2013). Crowds' participation and tasks are the raisons d'être of crowdsourcing.

Crowds' participation in crowdsourcing tasks is volitional and attracting participants requires an understanding of their motivation, which offers insight into why people behave as they do (Weiner, 2013). One has much freedom in choosing which crowdsourcing platform or website to use, which task to take up, and how much effort to expend on a task. Much research on crowdsourcing has focused on identifying what motivates participation (Hossain, 2012; Spindeldreher & Schlagwein, 2016). The seminal study by Brabham (2010) identified the four primary motivators to be the opportunity to make money, the opportunity to develop one's skills, the potential opportunity to take up freelance or full-time work ultimately, and the love of community. The four primary motivators have been found to be significant in many subsequent studies (e.g., Hossain, 2012; Kaufmann, Schulze, & Veit, 2011; Kosonen, Gan, Vanhala, & Blomqvist, 2014; Rogstadius et al., 2011; Zhao & Zhu, 2014; Zheng, Li, & Hou, 2011).

The four motivators have also been found to be significant for participants using different crowdsourcing platforms, websites, or tasks. This suggests that the four motivators are generally stable and cross situational rather than being platform or task specific. In line with this, in this study we focus on trait motivation rather than state motivation. In motivation research, state motivation is circumstantial, variable, and often a result of fleeting emotions, while trait motivation is relatively more consistent, enduring, *trans*-situational individual difference in preferences (Gardner & Tremblay, 1994; Heggestad & Kanfer, 2000; Latham & Pinder, 2004). Trait motivation is reflected in the tendency of an individual to constantly think and behave in a particular way in

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many different situations and contexts. In this study's context, for example, this means that we examine the opportunity to make money by participating in crowdsourcing as a whole, rather than in a specific website, platform, or task. Looking beyond a specific website, platform, or task is also consonant with the fact that participation is volitional. In the rest of this article, motivation refers to trait motivation, unless otherwise stated.

Although prior research has identified what motivate crowdsourcing participation, our understanding remains limited in two ways. First, there has been a lack of theoretical analysis of the four primary motivators. They emerged from an analysis of interviews (Brabham, 2010) and most prior studies have broadly categorized them into intrinsic or extrinsic motivation (e.g., Kaufmann et al., 2011; Rogstadius et al., 2011; Zheng et al., 2011). This results in a list of factors that, though statistically significant, often appears to be ad hoc. Time is ripe to look beyond the intrinsic-extrinsic dichotomy to consider whether and how other human motivation theories could further our understanding of these motivators, and enrich the theoretical development of crowdsourcing participation motivation.

Second, although the nature of task, especially task complexity, is the most common aspect identified in conceptual taxonomies of crowdsourcing (Nakatsu, Grossman, & Iacovou, 2014), it has rarely been accounted for in research on crowdsourcing participation. The dependent variable of crowdsourcing participation has been treated as a single black box, measured interchangeably in terms of intention to participate, participation effort, or time spent (e.g., Kaufmann et al., 2011; Kosonen et al., 2014; Zhao & Zhu, 2014; Zheng et al., 2011). Participation in well-structured, simpler tasks has not been distinguished from participation in more interdependent, complex tasks (e.g., new product co-creation). It is generally assumed that payment and love of community motivate participation in these tasks similarly, though in practice those motivated by payment tend to choose simpler tasks to maximize success and the chance of receiving payment, while those motivated by love of community prefer interdependent tasks that offer opportunities for social interactions. Relying on a broad conceptualization of participation leaves several important questions unaddressed: Is payment useful for attracting participants to take up simple, structured tasks as well as complex, unstructured tasks? Which motivator is effective for attracting participants for interdependent tasks? Addressing questions like these is also useful for practice, since crowdsourcing organizers often have limited resources and it is not feasible to put all the four motivators in place.

As an attempt to bridge these gaps in research and understanding, this study opens up the black box of participation and accounts for task complexity by distinguishing among participation in (i.e., choice of) unstructured tasks, high-commitment tasks, and interdependent tasks (Nakatsu et al., 2014). This study proposes that participants driven by different (trait) motivators focus on different task characteristics in task choice, and explains the differences theoretically based on the distal-proximal perspective of motivation (Kanfer, 1990). The perspective recognizes that different motivators vary in their conceptual proximity to task choice. Proximal motivators are those that directly control the initiation and execution of tasks, while distal motivators are those that affect task choice indirectly, through goal choice (e.g., achievement goal of developing competence). The distal-proximal perspective offers a useful theoretical basis for understanding differences among the four primary crowdsourcing motivators and hypothesizing their differential effects. Overall, the research question addressed in this study is: How do the four primary trait motivators of crowdsourcing participation differentially influence task choice?

Findings based on a survey of 283 crowdsourcing participants indicate that those motivated by payment tend to focus on demonstrating competence relative to others and are therefore more likely to choose structured tasks with clear, comparable output. Those motivated to develop competence (i.e., learn new knowledge and skills) tend to choose high-commitment tasks requiring more effort and therefore opportunities to improve ability, rather than focusing on task structuredness or interdependence. Those who are motivated to foster social affiliation tend to focus more on choosing highly interdependent tasks requiring coordination and collaboration with other participants.

This study has four main contributions. First, it enriches the theorization of crowdsourcing participation motivation, by clarifying the conceptual differences among the four primary motivators identified in prior research based on the distal-proximal perspective of motivation. This study shows that the motivators of developing competence and foster social affiliation influence task choice more directly than payment. This adds new understanding to crowdsourcing research, which has mostly relied on the intrinsic-versus-extrinsic categorization of motivators. Second, this study accounts for the multi-dimensional nature of participation in terms of task complexity, which is one of the most common aspects of crowdsourcing conceptualizations (Nakatsu et al., 2014). Distinguishing among tendency to choose unstructured tasks, high-commitment tasks, and interdependent tasks affords the possibility of clarifying the differential effects of the crowdsourcing motivators. Third, the differential effects were tested in an empirical study, and this study is one of the first attempts to answer the calls for research on the differential effects of motivators. Specifically, Pedersen et al. (2013) have suggested further research to examine how motivation varies with task type; Finnerty, Kucherbaev, Tranquillini, & Convertino, (2013) identified the need to systematically study how different rewards influence participants' performance for different types of tasks. Fourth, this study also contributes to practice by informing crowdsourcing organizers the motivators to emphasize for different types of task. High-commitment tasks could attract participants when the opportunity to develop competence and foster social affiliation (proximal motivators) are clarified; Interdependent tasks could attract participants when the opportunity to foster social affiliation is clarified; Offering high payment is not useful for attracting the take up of unstructured tasks.

The next section reviews prior studies on motivation to participate in crowdsourcing and identifies gaps in research. This is followed by the theoretical background and development of our model and hypotheses. The research method, data analysis, and results are then explained. Implications of the findings for research and practice are also discussed.

2. Literature review

Since our objective is to study the differential effects of the primary motivators of crowdsourcing participation on task choice, we reviewed the literature on these two topics. Before the review, we also provide a brief overview of the concept and development of crowdsourcing.

2.1. Crowdsourcing and its development

The term crowdsourcing was coined by Howe (2006) to describe an approach that harnesses the creative solutions of a distributed network of individuals through an open call. Notable pioneers of crowdsourcing include Wikipedia (participants create encyclopedia entries collaboratively), InnoCentive (an intermediary platform where participants propose solutions to problems in exchange for money), Threadless (participants create T-shirt designs), Amazon Mechanical Turk (an intermediary platform where participants complete tasks in exchange for money), YouTube (participants create videos), Fiat Mio (participants suggest design ideas for a car), iStockphoto (participants create images for sale) and Flickr (participants upload and tag photographs). Applications of crowdsourcing continue to expand to different sectors and industries, including policy making (e.g., Challenge.gov), social innovation (e.g., OpenIDEO), healthcare (e.g., CrowdMed), and education (Cambridge Assessment's A-level question crowdsourcing). Crowdsourcing offers access to a wide variety of knowledge and skills to complete tasks and solve problems, often at a much lower cost compared to hiring employees or professionals. Realization of the value of