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Networked Production and Crowdsourcing: A Developmental Perspective

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Abstract

The rise of crowdsourcing research which examines economic productivity of online communities is complementary to a larger body of work around networked society. However, we argue that the current definition of *crowdsourcing* contains one primary notion—that production goals are only given by companies and fulfilled by crowds—contradicts the theoretical structure of networked society. Specifically, networked society does not presuppose that companies have greater agency over communities. To illustrate this point, we conducted participant observation studies in two networked communities: a hacker community in Mexico known as SuperHappyDevHouse and an electronic sports community of the online game StarCraft. In both cases, we found that voluntary community participation is necessary priori and also on-going condition for development of emerging technology industries. We question whether the existing crowdsourcing notion is overly narrow and may be counterproductive in a long term as we seek to understanding social-economic significance of networked communities.

Introduction

Online communities have been examined by human-computer interaction since the late 90s (Preece, 2000; Rheingold, 2000; Bryant, Forte, & Bruckman, 2005; Nardi & Harris, 2006). But in recent years, there is a growing body of work that took a different spin; an emerging research field, primarily labelled as *crowdsourcing*, has taken interest in harnessing economic productivity of online communities (Howe, 2006; Klein, 2007; Surowiecki, 2004). This is a positive development in HCI that complements a larger body of work around networked society, which seeks to understand changing social-economic structure of collaboration and learning in technology-mediated communities (van Dijk, 2006). However, research framing of crowdsourcing has also departed from networked society theories in

ways that may limit potentials of the emerging field.

The term crowdsourcing is defined by Brabham (Brabham, 2013) as a “deliberate blend of bottom-up, open, creative process with top-down organizational goals.” This is a representative definition derived from 166 scientific papers concerning crowdsourcing (Estellés-Arolas & González-Ladrón-de-Guevara, 2012). Specifically, Brabham made use of this definition to outline the crowdsourcing process: (1) a corporate or government institution providing production goals, and (2) the crowds doing the work. Interestingly, under this definition, technologies like *YouTube*, in which participants simply upload contents they have created, are not considered as “crowdsourcing” platforms. This is because YouTube users do not take cues from “top-down organizational goals” (Estellés-Arolas & González-Ladrón-de-Guevara, 2012; Brabham, 2013). Instead, most crowdsourcing research work had been restricted to online platforms like *MechanicalTurks* and *iStockphoto*. We question whether such framing is counterproductive to this emerging research area if significant social-economic practices in an informationalized society are simply ignored or overlooked.

An informationalized society, or *networked society*, refers to a society in which participants of a social group are mediated by a set of information technologies as they conduct their collaborative and learning practices at work and in life (van Dijk, 2006). In this sense, members of a community that is *networked* are able to leverage technologies to conduct discourses and exchange digital artifacts with much less restrictions imposed by space and time (van Dijk, 2006). When it comes to the interfacing of companies with communities, Jan van Dijk (van Dijk, 2006) theorized this as a developmental phase of a networked society, in which companies that have completed the adoption of software as services and migrated databases onto the Internet, are poised to extend their production *value chain* to resources offered by networked communities. However, the term *value chain* does not presuppose that companies have greater agency over communities. From a developmental perspective, collaborative arrangements between companies and communities, including actors’ agencies and production goals and means, are subjected to changes over time. From participatory cultural perspective, one observed development trajectory includes communities becoming more engaged in economic production activities as they become participants of this value chain (Jenkins, 1992).

In order to understanding van Dijk’s perspective from a developmental standpoint, we conducted two participant observation studies in two different networked communities. In the first study, we examined the SuperHappyDevHouse community, as part of a year long ethnography of Internet startups in Mexico between October 2010 and October 2011. We attended seven SuperHappyDevHouse events in three different cities across that country. We interviewed eight participants and three organizers. In the second study, we examined an electronic sport community of the online game StarCraft. We interviewed 23 StarCraft participants between September 2011 and April 2012. These participants were active in online organizations like Teamliquid.net, and also in real life computer gaming clubs in California. In both studies, we asked the participants questions about personal history and career development related to their work in the communities. We observed community activities at the intersection of voluntary labor and profit-oriented practices.

Our Findings

SuperHappyDevHouse and The Hacker Community

SuperHappyDevHouse are informal meetings for people passionate about technology. Participants of these meetings get together for a day to work on software, hardware, and design projects for the mere satisfaction of building something new. In 2005, the events were first organized in Silicon Valley by local programmers and entrepreneurs. These events were also attended by foreign participants, whom upon seeing their benefits, sought to reproduce them in their own cities. SuperHappyDevHouse events are now held in twenty other cities around the world.

Participants of SuperHappyDevHouse events often identify themselves as *hackers*, or people passionate about technology and want to expand the limits of what it is possible to achieve with computing systems. Thus, SuperHappyDevHouse can also be described as a community of hackers. In fact, these organizers described the events as to “resurrect the spirit of the Homebrew Computer Club”—grassroots meetings among computer hobbyists in the 70s who helped shaped development of technology companies like Apple and Microsoft (Wong, 2007). In a SuperHappyDevHouse event, participants readily share knowledge, engage in technology explorations, and work on ad-hoc collaborations. Beyond real-life meetings, community members also interact online using a variety of media, including mailing lists, Twitter, IRC, Facebook, blogs, and wikis.

David, a programmer and a startup founder, was one of the organizers of the original SuperHappyDevHouse at the Silicon Valley. Due to the success of these SuperHappyDevHouse events, David became extremely well connected with hackers and startup founders in the area. And through one event in 2008, David met Santiago and Cesar, who were on a business trip to Silicon Valley from Mexico City. In the following months, whenever Santiago and Cesar were visiting Silicon Valley, they would attend SuperHappyDevHouse events and interact with David. The trio developed a close relationship.

Beginning September 2008, Cesar and Santiago sought to introduce SuperHappyDevHouse events to Mexico. Using online forums and Twitter, they started to contact Mexican hackers online to identify those who were interested in organizing the events in their cities. Santiago and Cesar traveled to these SuperHappyDevHouse events in-person so as to create a stronger connection with the local organizers and the hacker community. They had also regularly invited David to travel to some of these cities to give talks and to interact with local participants. In a few months, SuperHappyDevHouse events were regularly organized in five Mexican cities across the country.

The social network which Santiago and Cesar had developed through meeting Mexican hackers gradually evolved into a business opportunity: they could connect talented local hackers and startups with US investors and mentors from Silicon Valley into a transnational network. In our interview, Cesar explained that there were few startup investors in Mexico; many local hackers and entrepreneurs had great difficulties turning innovations into business ventures.

In 2010, Santiago and Cesar partnered with David, leveraging three years of mutual trust and good reputation in the community, to start a venture capital fund focusing only on Mexican startups. The role of the fund was not just to provide capital, but also useful advice and connections for nascent startups. David would help connect aspiring entrepreneurs to Silicon Valley's capital and mentors while Santiago and Cesar connect with hackers locally. They have obviously wanted to turn the venture into a profitable business, but Cesar said that "we are also hackers." Their reputation in the community is built on their identities as *hackers*. Their role is of a mediator between a hacker community and a business community. To Santiago and Cesar, voluntary participation as hackers in SuperHappyDevHouse is a necessary prerequisite to developing future business opportunities.

StarCraft eSports

Electronic sports (eSports) is an organized set of leagues that "compete through networked games and related activities" (Jin, 2010). eSports games are primarily played on personal computers connected to the Internet. And one of the earliest computer games that earned status of an eSport is StarCraft (1998). In the US, StarCraft as an eSport has taken a period of ten years to develop from a geek's hobby into an emerging industry. Between 2001 and 2009, US StarCraft players competed online, organized LAN events, and networked in tournaments supported by Korean companies. Today, there were three international leagues organized by US companies including World Championship Series, Major League Gaming (MLG), and North American Star League (NASL). In particular, MLG received a total of US\$70m dollars in venture capital to develop its eSports businesses.

Yet, eSports in the US would not have come this far without the existence, expertise, and productivity of its player participants. We will look at one case of Duran Parsi, the commissioner of *North American Starleague*—the first major US-based StarCraft league founded in 2010.

Duran Parsi has made important contribution in shaping today's StarCraft scene—he organized the first corporate-supported league. However, Duran himself have come a long way. He was a professional gamer and a long time organizer of LAN events and non-profit competitions. He had experience playing alongside top gamers around the world, and he was a leader of two top American teams.

When Duran was 10-years-old, he learned about StarCraft from his cousin. Since then, he visited his cousin every weekend to play the game. It was a family bond and also a bond between two young geeks. Incidentally, Duran's cousin was one of the top StarCraft players in the US and played in one of the top US team, known as *I'M*. *I'M* members practiced online most of the time. Through the Internet, Duran's cousin introduced him to more of his online friends and opened up his gateway to participate in online competitions.

At about 12, Duran was drafted into *I'M* and became a reserve team member. As a reserve, he was mostly acting as a practice partner for first team players. But in return, he got to know the insides of professional gaming—a luxury vast majority of StarCraft players could only dream of.

In 2004, Duran founded team *Light*, which was named on the most popular StarCraft community website, Teamliquid.net, as “one of the best American teams of all time.” With team Light, Duran participated in the first real life International tournament organized by Korean companies, the *World Cyber Games USA*, which was held at Long Beach, California. At WCG USA 2004, he met US eSports celebrities like Sean “Day[9]” Plott, whom he had known online but had never met in person. Meeting this core group of American players in-person changed Duran’s role in the community. In the same year, Duran began to organize LAN events in California. The top players in the locality began to interact more frequently, and Duran began to enlarge the scale of his events.

In 2005, Duran organized an online tournament known as *War of the States*. *War of the States* consisted 70 participating teams who competed in a league format. Duran reflected on why he was successful:

I’ve competed in tournaments before so I know what were good tournament rules and what weren’t good tournament rules, and I was just able to figure out what to do from that standpoint. I think being a former player really helped me because I kind of know, from a player’s perspective, what it’s like to compete in tournaments and what things would make me frustrated that tournament administrators would do and not do, and what I wished they would do. I was able to take those things and apply them.

In 2010, StarCraft II, the sequel to StarCraft, was launched by the game company Blizzard Entertainment. The newer version of the game attracted new players leading to an enlarged player community. And StarCraft II began to attract corporate investors. Duran met Russell Pfister from *Gosu Coaching*, a company that owns a video game coaching website. After some persuasion, Duran convinced Russell to start a weekly competition known as *Gosu Coaching Weekly*, which drove some traffic to the website. Duran organized a few more online competitions with *Gosu Coaching*, and Russell was pleased with the results. With these small successes, Russell agreed to sponsor Duran to run a major “\$100,000” league. And this was today’s *North American Star League*.

While NASL was not the first StarCraft II league, it was the first that opened up an eSport market. Following NASL’s initial success, other commercially supported leagues followed, such as *Major League Gaming* and the newly inaugurated *World Championship Series*. There was such unprecedented growth in eSports during these years that Forbes called 2012 “The Year of eSports” (Tassi, 2012). Yet, all these would not be possible without years of voluntary labor, expertise, and social networks created by StarCraft participants like Duran.

Discussion

In our cases, voluntary communities are incubators of ideas and practices vital to development of emerging technology markets. In the eSports’ case, participants were active for over ten years before the development of the commercially-supported *North American Star League*. And SuperHappyDevHouse events took three years to develop the connections between Mexican and Silicon Valley hackers and finally the creation of a new Mexican-based venture capital fund. In both StarCraft eSports and SuperHappyDevHouse, voluntary participants are economic actors who are indispensable in creating social-technical infrastructure for new industries and media companies.

However, in crowdsourcing research, participation has little creative connotation; it is an add-on activity that takes place after management has decided on production goals. In this form of crowdsourcing, only membership is “open,” and work tasks are not. As a result, crowdsourcing research is technically restricted only to platforms (by design) where this notion holds true, e.g., in MechanicalTurks where participants—in which many may be from third world countries (Ross, Zaldivar, Irani, & Tomlinson, 2010)—are fulfilling orders from companies.

Is it not counterintuitive to supplant creativity of online communities with rigid command logics?

Considering the creative potentials of networked communities, whether we view peer producers and companies as complementary partners has strategic research outcomes. By examining online communities from van Dijk’s perspective—as extended value chains of companies and not just outsourced entities—we can ask questions about their critical functions in a networked economy, e.g., how do they support, contradict, and integrate into profit-driven enterprises (Kow & Nardi, 2010; Kow & Nardi, 2013).

In both StarCraft eSports and SuperHappyDevHouse, founders and forerunners of startups had built their expertise as voluntary participants and hobbyists. When we consider how novel these startups are, e.g., playing games as sports, to treat these innovations at first as amateurish hobbies seems inevitable. From this developmental perspective, peer production helps incubate new products and ideas—a function that differs from but is a precursor to corporate production. Unfortunately, research areas like *crowdsourcing* have tendency to compare “crowds” to “experts” (or computers) on their performance in performing similar task, e.g., image recognition (see (Surowiecki, 2004)). Developmentally, we question whether this is holistic—since both communities and companies may perform different functions and are acting at different space and time of the corporate value chain.

Taken together, we believe that networked communities—with their ability to innovate and develop new markets—can in reality *work* with corporate employees via more lateral and reciprocative relationships (Kow & Nardi, 2010; Postigo, 2010; Banks & Humphreys, 2008). In both of our cases, networked communities are prime sources of innovative ideas. And there are many other examples of peer-supported innovations in the IT industry under this model. One example that has been mentioned earlier came from Steve Jobs and Steve Wozniack who were members of the *Homebrew Computer Club* in 1976. Another example would be computer game *Counter-Strike*, which was first developed by computer game modders in 1999, but sold 25million worldwide copies since its commercial releases.

With the rise of participatory culture, media technologies are lowering barriers to digital creation and online collaboration, thus enabling many to engage in forms of social-economic production (Jenkins, 1992; Benkler, 2006). In HCI, we have currently few ways of describing this emerging peer production model. While crowdsourcing is one of our first major attempts at describing relationships between companies and communities, it is also severely limiting. We are excited by this growing interests in examining interactions between communities and companies. But should we also re-examine our current foundations, so that we are better poised to conduct studies that better describe important features of the

networked society?

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