Crowdsourcing For The Environment: The Case of Brighter Planet

Jeff Biggar

Ryerson University, Canada

Abstract: Online social networks provide opportunities for users to engage in activities with social and environmental purpose. Global focus on combating climate change has positioned the role of the citizen as a significant component in reducing environmental harm. This paper explores the ways in which individuals are responding to these realities through web 2.0 platforms. Presenting a case study of current practices in crowdsourcing, this paper demonstrates that crowdsourcing for the environment has the potential to enable users to address environmental problems, however, democratic discourses surrounding this activity remain problematic. Among other conclusions, this paper finds that the melding of environmental advocacy efforts with networked communication and information technologies reinforces status-quo relations that magnify existing inequities between the information rich and poor.

Introduction

The increased attention to environmental issues of sustainability and 'going green' in the media has been accompanied by a rise in citizens' interest in 'doing their part' for the environment. At the level of the consumer, 'going green' has become a popular trend aimed at curbing environmental impact by using less and living in more responsible ways. Global Internet campaigns such as 350.org are encouraging people to band together and broadcast online messages to show decision-makers that climate change matters.[1]

Research has called attention to emerging opportunities for users to be actively engaged online, however, further assessment is needed in terms of who benefits from using the Internet as an environmental engagement tool. This paper investigates the contribution of the web 2.0 practice known as 'crowdsourcing' to the ever-changing composition of labour in a post-Fordist society. It argues that crowdsourcing is an appropriate tool to support work that reflects a democratic alternative to the consumerist approach of mitigating environmental problems with marketplace solutions. However, it identifies that tensions and imbalances still undermine the democratic potential of networked technologies to facilitate environmental engagement tools.

In other words, crowdsourcing can be situated as a form of labour that is both "pleasurably embraced" by users for social and professional reasons and "shamelessly exploited" by capital to extract profit at the expense of equity (Terranova, 2004, p. 78). The underlying objective of this paper is to formulate a discussion of crowdsourcing that attempts to explicate and deal with these tensions.

In addition, this study provides a conceptual framework that situates crowdsourcing in the context of capitalist development and contemporary labour relations in the networked society. It will discuss how the concepts of "general intellect", "immaterial labour" and "co-creation" provide a basis for informing the theoretical nature of crowdsourcing. In light of a growing opportunistic logic reflected in popular and management literature, this paper will challenge optimistic assumptions made of open, communicative access to online networks by discussing myths surrounding the production and consumption of user-generated content. It will address the following research questions: What is the nature of social networking practices like crowdsourcing? How does the participatory rhetoric surrounding web 2.0 practices disguise power relations? Who benefits from the labour output of crowdsourcing ventures? These questions will be considered in relation to crowdsourcing practices as applied to social and environmental issues. Lastly, the paper will consider the political economy of labour perspectives in addressing the obstacles faced by crowdsourcing applications in becoming hopeful projections of non-market peer production. Research efforts examining the ways in which crowdsourcing can be conceptualised as not just an online business model, but rather a problem solving model aimed at dealing with social and environmental problems, are nascent and require new research frameworks (Brabham, 2008a). This study builds on this research with a critical discussion of the ideas, practices, opportunities and limitations of crowdsourcing. Moreover, it provides critical background that could inform empirical research looking at the intersections between crowdsourcing and environmentalism.

Shifting Network Dynamics: There is a Crowd for That

In his essay, "New Media and Global Power: The Internet and Global Activism", Lance Bennett reflects on the emergence of a "digital public sphere" in light of recent social justice movements resisting the stronghold of neo-liberalism. He is confident that mass-scale organisation through online networks is a successful and growing approach to mobilising counter-movements. According to Bennett, personal media, or "micro-media" such as e-mail, blogs and social media tools, serve as an intermediary between remote networks and mass-media channels. As such, they serve to actively inform the greater public of grassroots activity (Bennett, 2003). Benchmark cases like the Seattle World Trade Organization (WTO) protests in 1999 demonstrate the capacity of networked communications politically. However, the growing fragmentation of the web is creating networks with socio-political agendas on a much smaller scale. Since Bennett's piece was published the dynamics of the Internet have become more collaborative and interactive, which has furthered the tendency for users to become actively involved in the production of content.

While the potential for political mobilisation on a global scale through "micro-to-mass media crossover" (Bennett, 2003, p. 13) has been explored fairly comprehensively, those practices occurring at a smaller (more a-political) scale have received less attention. Terranova (2004) has observed that the collective social and cultural knowledge being put to work in online spaces is facilitating the conditions for new forms of micro-political activity to materialise. However, she also suggests that the relationship of knowledge production to capitalist relations reduces

its impact as a change-making force, as the expropriation of value or co-opting of measures through social networks increasingly restrains progressive activity. A review of these practices occurring at a smaller scale is undertaken briefly below in relation to crowdsourcing.

Wired magazine writer Jeff Howe first introduced the concept of crowdsourcing into the popular mainstream in 2006, describing it as "the act of taking a job traditionally performed by a designated agent and outsourcing it to an undefined, generally large group of people in the form of an open call" (Howe, 2006, p. 87).[2] Crowdsourcing is an example of the ability of web 2.0 to reach new domains with niche and cause-oriented interests drawing upon different political and economic circumstances. The term crowdsourcing describes a web-based model used by companies and organisations to outsource projects to networks of individuals. It is becoming a widely adopted mode of organising labour for businesses and organisations looking to expand their operations into networked communities. Initial crowdsourcing experiments involved computer-related activities such as software coding and debugging, and were primarily of interest for technology hobbyists.

Since Howe's definition, the practice has been reinterpreted and modified, and is now being applied to an assorted range of interests, from marketing companies all the way to not-for-profit organisations (Whitla, 2009). For example, Whitla (2009) notes that marketing companies are utilising crowdsourcing as a means for individuals to design and create their own content and products as opposed to already existing in-house projects. The bulk of the literature on crowdsourcing comes from business, creative industry, and popular accounts that have a tendency to mirror the logic of capital. The rhetoric embedded in this literature promotes the entrepreneurial individual as the primary subject who would gravitate towards this type of work (Howe, 2008; Tapscott and Williams, 2006). With Terranova's comments in mind, crowdsourcing can be viewed as a practice that mixes both labour and leisure, calling into question the capacity to deliver a rallying cry for a more flexible, pleasurable, and autonomous work arrangement.

Regardless of how crowdsourcing is defined, a key tenet remains: outsourcing to an online community comes in the form of an "open call." These open calls detail specific tasks or problems, and individuals and groups are invited to submit creative proposals in response. In other words, a company posts a problem (or project pitch) online; individuals or groups offer up solutions; members vote and the winning projects receive recognition. There is, however, disagreement over what constitutes legitimate acknowledgment and value-creation for participants of crowdsourcing. Whitla (2009) argues that content providers should be paid, whereas others believe monetary reward is not essential in motivating people to participate. Rewards can also include the opportunity to learn new skills, build one's portfolio, and leverage cultural capital (Brabham, 2008; Howe, 2008b). Regardless of its variability, there is some consistency in the literature as to what crowdsourcing arrangements look like. Kleemann and Günter Vob (2008) highlight the most common criteria used by for-profit companies to crowdsource product ideas: They include the participation of consumers in content development and design, permanent open calls, project vetting (members of the network vote on winning ideas), and community reporting - forums that allow members to add input, make suggestions, and give observations of trends they have noticed that might inform project ideas.

In the creative and marketing industries, crowdsourcing operations incorporate a variation of the above criteria into their approach. For marketers, crowdsourcing is a way to test the waters for input into future product development, a "means to develop content for services"

(Whitla, 2009, p. 21). For instance, crowdsourcing has been seen as an invaluable opportunity in identifying trends and co-opting innovative and cutting-edge ideas for corporate marketing. Trendwatching.com contains a user-led database of trends in fashion and popular culture for companies to monitor and include in their market research. Similarly iStockphoto , a micro-stock photography company, consists of a network of community (stock) photographers who upload their photographic content for prospective clients. Interested clients then survey a database of visual media, download the particular stock they want, and provide a small payment to the producer (Brabham, 2008b). In the public, more community-oriented domain, sites like seeclickfix facilitate a platform for citizens to report non-emergency public infrastructure problems in their communities to neighbourhood groups, elected officials, and public works committees. This interface creates feedback loops between citizens and decision-makers by reporting back to the community, or "crowd", when problems (potholes, tree removal, vandalism, park maintenance) are fixed. The site has seen their efforts create minor impact in cities across North America. For example, in Philadelphia, an advocacy group used the site to aggregate citizens to document incidents of prolonged vehicle idling which then helped to inform recommendations for clean air initiatives at a policy level. [3]

While some crowdsourcing schemes presented thus far represent projects geared toward market and cultural production, there are signs of more unorthodox and commonplace designs emerging online. A recent crowdsourcing experiment by design blog SwissMiss shows an alternative interpretation of the crowdsourcing model that exploits the method of "community reporting" mentioned above. The experiment set out to crowdsource four-letter baby names for the arriving newborn of the site's owner, Tina Roth Eisenburg (figure 1 reflects the "open call"). The blog received approximately 350 responses within 12 hours from all over the globe via Twitter and the site's blog forum (Young, 2010). It also secured a radio interview for Tina Roth on a widely broadcasted program that discusses the impact of new media technology on society.[4]

CROWDSOURCING GONE EXTREME:
HELP NAME SWISSMISSTER

Figure 1: Everyday crowdsourcing pitch
Source: Eisenburg, Tina Roth.
Retrieved from http://www.swiss-miss.com/2009/11/extreme-crowdsourcing.html

Conceptualising crowdsourcing as not just a profit-generating business model, but rather a non-market model or democratic platform would increase functionality for application with different agendas and interests. Therefore, as the practice continues to be introduced across different occupations and industries, Brabham (forthcoming, p. 4*)* suggests that a "coherent set of conditions for what makes a successful crowdsourcing arrangement is needed". This involves improving our understanding of what motivates people to engage in these collective activities

on a case-by-case basis. Moreover, it requires an understanding of the working conditions that participants of crowdsourcing operate in. While crowdsourcing can be seen as a positive example of personal empowerment, this form of labour is often precarious, temporary, and offering little by way of guarantee. Kleemann and Günter Vob (2008, p. 22) see crowdsourcing by profit-driven companies as the "commercial exploitation of creative ideas" because participants are often underpaid for their work, leaving the firm to benefit the most because they own the right to distribute and sell user content. On the other hand, in his qualitative study of online t-shirt company Threadless, Brabham (forthcoming) found that motivation to participate in order to make money was strong, but so were the chance to improve one's skills, land future work, and be a part of a community of like-minded people. These questions of reward, motivation, and subjectivity in crowdsourcing will be discussed again later on.

These cases are an indication of how the crowdsourcing model is being appropriated in ways that encompass both self-interest and shared responsibility. In the crowdsourcing landscape, there are opportunities to advance one's professional reputation (e.g. iStockphoto), and chances to provide mutual benefit close to home (e.g. seeclickfix). As crowdsourcing becomes better integrated across sectors (corporate, creative, public) and more legitimised in scholarship (business management, new media and communication studies) a best practice formula is needed to fully support its trajectory into uncharted territory. The discussion above suggests that crowdsourcing is still defining itself as a both an enjoyable creative activity and a form of labour.

The value derived from crowdsourcing is comparable to social networking sites, where individuals tend to associate with others who have similar tastes. In networks of like-minded members, people build social capital by sharing these interests with one another. Social capital becomes actualised through civic engagement, interpersonal connection, and self-satisfaction (Boyd and Ellison, 2007). Crowdsourcing provides an applicable framework for understanding the different types of value individuals and groups adopt from participating in web-based initiatives that rely heavily on commitment. Examples of how crowdsourcing is enabling networks of users with environmental concerns to channel their efforts on a micro level will be discussed below in relation to Brighter Planet.

The Case of Brighter Planet

Public debate around environmental issues consists of many divergent viewpoints that compete for audience attention. As such, the public discourse is expanding beyond industry leaders, decision-makers, and pundits to include average citizens, reflecting growing public interest in both protecting the planet and adopting more sustainable behaviour patterns (Cox, 2006; Moser and Dilling, 2007; Russill and Nyssa, 2009).

Brighter Planet is an online environmental community that encourages members to engage with environmental issues such as emissions reduction, sustainable lifestyle choices, ecologically friendly products, and consumer responsibility in the "going-green" marketplace. Since its inception in 2007, Brighter Planet has gained 150,000 registered members, ranging from college students to senior citizens.[5] The site's features are personalised to illustrate one's carbon footprint - that is, impact on the environment through everyday actions - and offer suggestions to reduce greenhouse gas emissions. Personal carbon calculators provide a visual representation of each member's impact on the environment, which can be seen on their profile.

The site is also involved in crowdsourcing projects. The Brighter Planet Project Fund awards monthly cash prizes (up to $5,000) to grassroots climate projects in the United States. Similar to other crowdsourcing ventures, a general open call for proposals rallies interested users to create projects addressing issues of climate change. Matt Vaughn[6] states that any American citizen with a credible sponsor (any company or organisation that supports the project's goals) is eligible to receive funds. Once the details are in place, the project selection committee verifies the projects (each project must have a project sponsor) and lists them on the website in order to begin the vetting process. In short, members vote on which projects they feel should win the grants, based on viewing proposal descriptions published on the website. Projects have focused on areas such as reforestation, climate education, international climate politics, and renewable energy (figure 2 shows how the funds are distributed across project ideas).
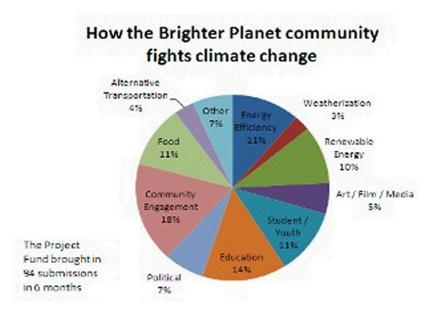

Figure 2: Brighter Planet Fund Distribution
Source: Brighter Planet Online.
Retrieved from http://brighterplanet.com/project_fund_projects. All rights reserved.

I would argue that the majority of these projects demonstrate collaboration at work as each project has multi-member teams. Considering "community engagement" projects are highly funded, Brighter Planet values projects that provide a collective service. Specific project titles include: "Climate Education: 10 Essential Facts and Strategies", an environmental education program aimed at curriculum reform in the Boston school system. "Clean Power, Health Communities Convergence" has a dual purpose of initiating clean energy solutions in the Oakland area and creating green jobs for those of a poor socioeconomic demographic.[78] Brighter Planet's fair labour practices can be seen in that it does not retain a high profit - or surplus value - from participants. Instead, it reserves the right to publicise winning projects on its website for the network to view, but does not sell these design models or ideas on to its clients (in the way that for example iStockphoto does). The fact that it doesn't use crowdsourced solutions for its own profitability is a major point of distinction between Brighter Planet and other platforms.

Brabham (forthcoming, p. 21) argues that "the best crowdsourcing applications cultivate a crowd that is so engaged as a primary stakeholder in the process" in that they enable creative control rather than exploiting it. In other words, allowing users to drive the process instead of

observing how their ideas are being co-opted for other's usage distinguishes crowdsourcing arrangements. Affording people the opportunity to solve a problem provides a sense of ownership over the direction of the project. Companies like Brighter Planet capture the shifting nature of crowdsourcing from a strictly online business model, to one that is multi-faceted, integrated into public spaces, and committed to services that focus on non-commodification. The next section will assess these claims more closely with a view to uncovering barriers that may impede or limit such efforts.

DISCUSSION

Brighter Planet's approach to crowdsourcing combines social network dynamics with environmental issues in a digitally mediated context. The discussion below will consider whether this platform constitutes a new type of arrangement that is conducive to environmental issues, or merely a movement of these activities from other (offline) spheres to a networked context. Specifically, it will consider the types of people who benefit from engaging with such an arrangement and those who are excluded from participating.

While the environmental advocacy movement appears largely known as a political project, "green hype" has also been embraced by the corporate world as a means of selling lifestyle politics to consumers. The environmental movement has generated the phenomenon of "going green" at both the level of the consumer and producer. "Going green" is a practice that promotes an ethical shift in behaviour by focusing consumer choice and corporate strategies on environmental sustainability. From this perspective, ethical consumption refers to making consumption decisions based on issues of human rights, environmental responsibility, and fair trade work practices. However it has been widely argued that this form of consumer-based politics or "voting with your dollar" does not constitute democratic, let alone political, action as it is only feasible among concentrated social groups that are economically privileged (Banaji and Buckingham, 2009; Johnston, 2008).

Consumer-based solutions to environmental problems can be seen as class-based in that they require substantial purchasing power, or capital, that only a fraction of society can attain. Thus, this aspect of the green movement is increasingly limited by market modes of ecological regulation that merely moderate environmental problems rather than addressing them systematically. Corporate advertising's attempt to remedy environmental degradation by positioning consumption to be ethical (e.g., fair trade products) and lifestyle choices to be empowering (local food production/organic gardening) represent class-based solutions that negate larger, structural problems. These include ignored environmental effects, such as resource depletion and overproduction, engendered by capitalism, including related areas such as health impact, food insecurity, and socio-economic inequality. While some are afforded the luxury of consuming green products to protect themselves from environmental harm, such as food shortage, water contamination and airborne contaminants, most citizens cannot do this consistently. Therefore, the 'environmental problematic' becomes a question of how social, environmental, and economic well-being can be maintained for *all* citizens within ecological constraints (Rosenwarne, 2002; Wall, 2006).

Decentralised production and consumption, social and environmental justice goals, and removing the dominance of capital accumulation as the primary element in exchange relations is imperative for environmental problems to be approached effectively and inclusively. As it stands, consumer-based responses to issues like fair-trade labour practices have a tendency to

blend opposing class interests into one voice. An equal amount of research from new media and environmental studies has been devoted to uncovering digital divides, or the inequities that surround this relationship. Online platforms are built on the assumption of open, communicative access, yet most often cater to a privileged demographic (Dean, 2009). As new technology typically empowers already experienced and motivated groups (for example, those who are environmentally and technologically predisposed), there is a better chance their agenda will prevail. This agenda, which typically reflects white, middle-upper class concerns, has failed to meet the needs of historically marginalised communities (Bucy & Newhagen, 2004; Melosi, 2006).

On one hand, non-commodified solutions created by Brighter Planet (community engagement and environmental education) could benefit others through improved living and working conditions, and potentially reflecting good citizenship. Raising public awareness, banding together, creating educational campaigns and action-oriented projects can reflect the "modality of citizen in a democratic society" (Szasz, 2007, p. 4). On the other hand, if the venture reflects networks of privilege and undifferentiated groups, then project creation is still being undertaken by those who are environmentally predisposed, rather than newcomers without a prior interest. While it is speculative to comment on the composition of members in the Brighter Planet network, it has been shown through other crowdsourcing experiments, such as Brabham's (2008b) empirical study of crowdsourcing contributors at iStockphoto, that networks tend to be non-inclusive. In some ways, crowdsourcing follows a logic of meritocracy within a discourse of democratisation. The practice is built on the assumption of open, communicative access, yet it caters to a homogenous and privileged crowd (typically white, middle-to-upper class) that has the required levels of access and digital literacy to participate.

Participatory Networks?

The impetus behind crowdsourcing arises from the shift to a web 2.0 environment that seeks to "harness" the creative capacity of its users by affording them opportunities to interact and collaborate (O'Reilly, 2005). Green and Jenkins (2009) suggest that an increase in the flow and development of content is changing the way we examine the effects of concentration (media industry) and convergence (participatory culture). Online services are more and more designed as shared platforms in which the audience is positioned as not merely a consumer of these services, but rather as an active agent in the production process. Social networking sites like Facebook and MySpace, and photo-sharing sites like Flickr, reflect this greater reliance on the user to produce and distribute content. This practice is commonly known as "co-creation", based on the notion of user as producer.

Co-creative relations have signalled an influx in user-generated content, whereby user-led innovation is a central component shaping the digital economy today. Social media tools – personal media forms such as microblogs, video sharing, instant messaging, and social networking sites – harness these connections and are becoming widely used. As of October 2009, it is estimated that close to 50 percent of American Internet users are engaging with social networks, with approximately 20 percent of these using status updating tools like Twitter (Pew Internet Project, 2009). Crowdsourcing is actively shaping this shifting dynamic between consumer (user) and producer (media company). However, while it appears many people engage with social web applications, most of the activity on a typical online social network is produced by a small contingent of users. In their study of Twitter usage patterns, Piskorski and Heil (2009) examined the activity of 300,000 Twitter users and found that over half 'tweet' less

than once every two and a half months. What's more, they discovered that the most productive 10 percent of users account for 90 percent of "tweets", or message content. A similar study by a Canadian research firm, Sysomos, investigated 11.5 million twitter accounts, and found that one in five people who had initially signed up for the service had never posted anything (Cheng *et al*, 2009).

The capacity for web 2.0 applications like Twitter to resemble a dyadic, peer-to-peer communication network has yet to be fully realised. Research suggests that the exponential expansion of networked communications technologies has potential to be more redundant than useful at times. Dean (2009) suggests that although the commodification of the web may create more opportunities for users to create and circulate content, this does not necessarily mean a user's contribution will elicit a response, be influential, or create an impact. In other words, she observes that messages contribute to a circulating content stream that may never reach a desired receiver or end point because of high network volumes. Similarly, Miller (2008) argues that in an effort to contribute, participate, and be heard, we find ourselves in a constant state of "catching-up networking" with our multiple nodes and networks by large groups of people. In most cases, users register with sites and networks, like Twitter, but fail to develop any long-term attachment. This research challenges assumptions about the degree to which network access equates to a greater contribution of content through networks. Most importantly, it debunks earlier claims in the literature by Howe (2006) that crowdsourcing is a site for "undefined groups" to mobilise their creative capacity. Instead, research such as that by Brabham (above) has shown that these groups are fairly narrow, predictable and centralised, with similar types of users consistently engaging with this form of technology.

As the proliferation, distribution, and acceleration of content intensify on the web, the likelihood of improved democratic relations lessens (Dean, 2009;Terranova, 2004). In other words, the adage more (information) is less (influential contribution) is taking shape. Open, communicative access doesn't necessarily mean a wider contribution of content through networks. From this perspective, Dean's theory of "communicative capitalism" is a helpful framework to evaluate the social nature of co-creation online. She suggests social relations on the web are actually characterised by a non-inclusive, unresponsive dialogue. Communicative capitalism, for Dean, comes to mean a form of democracy that consists of an entirely one-way dialogue that elicits no response. A closer definition of Dean's term follows:

> The concept of communicative capitalism designates the strange merging of democracy and capitalism…It does so by highlighting the way networked communication bring the two together…instead of leading to more equitable distributions of wealth and influence, instead of enabling the emergence of a richer variety in modes of living and practices of freedom…rhetorics of participation and democracy work ideologically to secure the technological infrastructure of neoliberalism - a project that concentrates assets in the hands of the very, very, rich. Dean, 2009, pp. 22-23

Social web practices (blogging, networking, co-creation) promote an opportunistic logic of creativity, autonomy, and individualism. In this, they also constitute a notion of democracy that is refashioned under neoliberal ideas of freedom, creativity, and empowerment. The next section will explore these tensions further and introduce a set of academic and popular concepts that inform the composition of practices like crowdsourcing in a post-Fordist (network society) context.

CROWDSOURCING AS LABOUR

The crowdsourcing business model seeks to harness the collective solutions of networked communities around the web. By recognising the user's ability to self-organise, crowdsourcing experiments are tapping into the emergence of what Pierre Levy (1997) calls "collective intelligence." Levy argues that value creation in the digital economy arises from the Internet's ability to showcase unfettered human intelligence.

These forms of human ingenuity and innovation are commonly channelled into forms of immaterial labour. This concept is broadly defined as labour which "produces immaterial goods such as a service, a cultural product, knowledge or communication" (Hardt and Negri, 2000, p. 292). Anyone who creates content through personal media, or micro-media, is contributing immaterial labour on the web. Terranova (2004) suggests this framework of "collective intelligence" is rooted in the writings of the autonomist Marxist tradition and reflects some overlap in the discourse. Karl Marx's original concept of "general intellect" is relevant in understanding how contemporary capitalism acquires markets in new terrains. Applying this concept to the context of post-industrial production, general intellect can be defined as "an articulation of fixed capital (machines) *and* living labour (the workers)" (Terranova, 2004, p. 87). This economic function is characterised by a shift to decentralised work environments removed from sites of industrial production. The autonomists argue that the "general intellect" became more pervasive following a transition to a knowledge-based economy. With this, the notion of the "Social Factory" emerged out of a post-Fordist shift from factory production to an information economy, whereby the socialised worker replaced the mass worker. In short, what we perceive to be a brick and mortar factory exists not within walls, but within society itself (Hardt and Negri, 2000; Cote and Pybus, 2007).

Historically, crowdsourcing (an example of this shift) can be as seen as the firm or organisation's expansion of operations, such as market research and research and development, into new markets. Initially these forms of knowledge production and corporate research were sub-contracted out by companies to various occupations (for example, scientists and engineers) to gain specialised expertise on the advancement of technological innovation (Machlup, 1962). Today, these tasks are not necessarily performed in-house, but rather completed by individuals and groups willing to contribute their ideas. In short, forms of knowledge production are handpicked by companies from online network communities that lend their ideas to businesses. From there, similarly to other crowdsourcing practices, they are voted on by community members. For example, Cisco (Telecommunications), Cleantech (Environmental design), and Procter & Gamble (consumer products) engage with crowdsourcing. InnoCentive - an online hub that allows companies to crowdsource their "costly" research and development needs to global networks - facilitates these developments (Von Hippel, 2005).

This form of labour is informed by 'affective' and 'immaterial' elements for much of this work is dependent upon communicative and emotive capacity. Information and communication technologies are becoming more and more facilitative of immaterial labouring activities with affective dimensions and no financial compensation. As will be discussed below, "free labour" becomes important under communicative capitalism as more and more companies reduce production costs by shifting operations online, and a growing number of knowledge, or creative, workers compete for short-term contracts to enhance skills, work autonomously, and build portfolios.

The tendency to "immaterial labour 2.0" is becoming more and more ubiquitous as communicating between networks also becomes part of everyday life (Cote and Pybus, 2007). In reflecting back on the crowdsourcing experiment by design blog SwissMiss, we can see how Dean's concept of communicative capitalism gains traction. Members of the network communicated their suggestions of baby names but received no response in return for their time spent. While this example may appear to be a minor and insignificant task, it is indicative of a volunteer labour model pervasive on the web today. Crowdsourcing can be seen as an extension of communicative capitalism's restructuring of leisure, consumption, and production as it represents the collapse of waged and un-waged labour and erasure of work/life boundaries. Participating in crowdsourcing is not necessarily a wage-based activity, but rather a form of "free labour" that challenges traditional notions of paid work, and structured and unstructured time. Terranova (2004, p. 73) notes that this form of labouring could be subconscious and ordinary, "a brief experience of something that did not feel like work at all". Contributing content, updating one's website, and collaborating with others are all practices of "free labour" that inform value-creation under communicative capitalism in the digital economy.

Free labour practices through crowdsourcing can be seen as a variety of communicative capitalism that expropriates value from users, providing little in return by way of recognition or compensation. To this end, Dean (2009) suggests, a key condition of communicative capitalism is that the exchange value - or economic function in capitalist exchange relations - of message content is paramount to its use value. As web 2.0 practices continue to become more monetised, marketed and privatised, co-creative relationships signal both an enjoyable opportunity for labour (either social, free, or wage), but also an exploitative one. In the latter case, workers are self-organised, yet their work produces profit for a company of which they are not direct employees. As shown with the example of Tina Ross Eisenburg, profit may be in the form of social and cultural capital - securing an interview on a popular, prime time radio broadcast to promote her digital network. However, it comes at the expense of the crowd who contributed their ideas at no cost. It is important to acknowledge that these users sustain such ventures, and in cases where no financial compensation is given remain anonymously propping up someone they have no relationship with.

Terms like "general intellect" and "immaterial labour" rely upon a multifaceted relationship between capitalist organisations and individualisation, and it is important to draw these out. Practices like crowdsourcing reflect tensions and opportunities for labour through information and communications technologies. On the one hand, crowdsourcing provides a platform for new subjectivities to form meaningful connections (such as exercising autonomy and creativity). On the other hand, the risks and responsibilities that come with this engagement can fall back on the individual. Oppressive, unstable, and insecure forms of work and living characterise the nature of this work. If this relationship becomes disproportionate, the transformative opportunities of work like crowdsourcing remain precarious. In this instance, the anxiety over acquiring work, and feeling a constant need to update one's skills, pit creative workers against one another in a race to gain competitive advantage.

These historical shifts in labour activity and audience involvement are shaping current web 2.0 environments and crowdsourcing developments alike. Companies like Brighter Planet reflect these new directions by combining online participation with offline opportunities. While the Internet is merely the catalyst of the project creation (the bulk of production is taking place on the ground), it exemplifies the synergistic opportunities made possible as a result of web

2.0 developments reaching new avenues. That being said, further empirical study into the meaning that environmental workers bring to their work and their overall experience would provide better insight into the advantages and disadvantages discussed above. For example, what motivates people to become involved with these projects? Lastly, as crowdsourcing schemes overlap with environmentally focused projects, it is important to not let rosy displays of green-inspired activism convince us that such sites of engagement don't reinforce existing environmental inequities and stratified social relations. Transferring environmental practices to digital networks doesn't necessarily rid existing problems of class-based positions and consumeristic solutions. Exercising consumer responsibility is therefore important when deciphering "going green" corporate messages.

LIMITATIONS AND IMPLICATIONS

The tendency for capital to place emphasis on non-binding contracts and exchange values through practices like crowdsourcing is a prevailing mediator of our political economy of labour, creating disproportionate ideals of access in relation to crowdsourcing. As argued above, Brighter Planet supports collective solutions to environmental problems, however this doesn't mean that social concerns get smoothed over. While it is important to highlight the productive work being done through crowdsourcing efforts such as Brighter Planet, it is essential to distinguish between the quality of work and the quality of working, and social, conditions.

Most participants of crowdsourcing are well-educated, have technical training, and the digital tools to inform and produce their work, yet labour issues of job security, stability, and exploitation contribute to feelings of uncertainty in this sector. Crowdsourcing, as with other contingent and freelance labour, is marked by precariousness, which in this context means the discontinuous and unsecured work conditions of people contributing to the knowledge sector. As such, people in this area fall under the moniker of "precariat" worker, which Gill and Pratt (2008) broadly define as exhibiting both characteristics of precariousness and proletarianism, suggesting an occurrence of exploitation, but also a capacity for political organisation. They further suggest that research into the meaning that people bring to their work would be beneficial in fully understanding this position. As they describe, "the unpleasant affective experiences - as well as the pleasures of the work - need to be theorised to furnish a full understanding of the experience of cultural work…to produce an integrated understanding" (p. 16). Similarly, Hardt and Negri (2000) observe that an "integrated" understanding would entail that political-economic perspectives of communication and lived experience co-exist. This relationship would strengthen our understanding of how collective subjectivity takes shape, intervenes through online networks, and truly harnesses the "collective intelligence" of the Web to benefit digital labourers in a way that could reduce precarious circumstances.

With such divergent and competing interests in the environmental arena, dealing with difference, settling on common ground, and appealing to new and different groups remain challenges for environmental crowdsourcing. Points of concern mentioned earlier over networks of privilege reflect back on the literature of Boyd and Ellison (2007) who found that most users develop preferential attachment to networks that their friends or acquaintances are part of. That is, niche-oriented platforms tend to attract people with similar interests and tastes. As crowdsourcing attaches itself to more and more causes (such as the public sector and social and environmental interests), it is important to consider what existing hierarchical order gets washed over under the guise of participatory rhetoric. In other words, if the advantage continuously goes to the same users and groups, crowdsourcing will remain a narrow, one-

dimensional practice concerned with competition over cooperation.

Similar to issues of class-based agendas mentioned earlier surrounding environmental participation, Ross (2009, p. 188) contends that capital's co-optation of the "general intellect" (or collective intelligence) may be collaborative by nature, however, it should be viewed in the context of a social division of labour that reproduces existing inequities between the haves and have-nots. The only way to consolidate these social relations is to build "cross-class collations" that represent bottom end users and broaden network participation. Idealising the capacity of the "general intellect" to be an open and co-operative model perpetuates the myth of a democratic, communicative ethos mentioned earlier. De-centralised networks, creative freedom, and empowerment don't necessarily parlay a form of democracy that is transformative for all. That being said, the capacity for capital to contain and channel the general intellect does not necessarily exceed workers' ability to control it. Worker resistance, and 'refusal of work' strategies, are forms of subversion that can translate into labour organisation. As crowdsourcing matures as a form of labour, the possibility for this activity to materialise will increase. For example, if workers produce autonomously without the need to be managed, what is stopping those involved from entering into business independently, rather than delivering the end product to a firm or company that stands to benefit?

Conclusion and Next Steps

This paper investigated the web 2.0 practice known as crowdsourcing, particularly its emergence as a mode of labour in the networked society. It argued that, on the one hand, crowdsourcing can be seen as an exploitative process of capital offloading its labour costs onto the backs of users and consumers. Yet, on the other hand, crowdsourcing is an opportunity for specialists and the precariously employed to leverage their creative capacity for a variety of prospective companies. More research is needed on how workers negotiate these tensions and whether or not they are motivated and empowered to resist power relations and structures. Further, it presented a case study of an environmental crowdsourcing practice that supports user interest in providing solutions to social and environmental problems. Interviews with actual participants from Brighter Planet that discuss topics of value, exploitation, and the meaning they give to their work would provide much-needed empirical research around accepted criteria for fair wages and quality of life indicators in crowdsourcing. Lastly, this paper discussed the problems that come with combining environmental advocacy efforts with co-creative practices. It revealed that the opportunity to participate in these practices is largely based on the socio-economic conditions of users, the provision of access can exclude those without the required capital and literacy - typically marginalised and low-income communities. Democratic assumptions between digital networks and environmental advocacy efforts need to be addressed and reconciled before participatory rhetoric surrounding these overlapping areas can be realised. In order to adequately celebrate crowdsourcing as a micro-political project it must reflect fair and ethical working conditions, and make efforts to reach newcomers who do not necessarily have the benefits or privileges to participate in democracy. Such criteria have yet to be determined and remain fundamental to the challenges of theorising the democratisation of the web and crowdsourcing practices alike.

While crowdsourcing has been celebrated by some as a democratic innovation that provides rewarding employment opportunities that contribute to the advancement of one's professional and social identity, its recognition as a form of labour and its relationship to capital should be of critical focus going forward. More empirical research of crowdsourcing ventures will

contribute to an understanding of whether such opportunities are indeed a positive experience or one blanketed with naïve optimism. Crowdsourcing is an unfolding social and labour experiment being appropriated across private and public sectors that varies in composition. As the practice continues to develop, its potential as a micro-force for strengthening environmental relations should not be overlooked.

ENDNOTES

1 In recent years the environmental agenda has sought to include social concerns into its efforts. Factoring in 'sustainability'- issues such as socio-economic inequities, food insecurity, and impoverished living conditions - are considered vital to addressing ecological concerns democratically.

2 It should be noted that crowdsourcing is different from conventional notions of 'outsourcing' which takes in-house production and transfers it to low-wage, developing countries, and open source practice - work that is typically done for free by hobbyists for common goals (Mosco, 2008)

3 http://www.seeclickfix.com/watchers/list?place_id=19698

4 http://www.cbc.ca/spark/2010/03/full-interview-tina-roth-eisenberg-aka-swissmiss-on -crowdsourcing-a-baby-name/

5 Vaughn, Matt. (2010). 'Interview by author.' E-mail. 11th March

6 Matt Vaughn is the Science Outreach coordinator for Brighter Planet

7 http://projectfund.brighterplanet.com/projects/climate_education_10_essential_f

8 http://projectfund.brighterplanet.com/projects/clean_power_healthy_communities_

REFERENCES

Banaji, S. & Buckingham, D. (2009). The Civic Sell: Young people, the Internet, and Ethical consumption. *Information, Communication, and Society*, 12(8), 1197-1223.
Benkler, Y. (2006). *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. New Haven Conn.: Yale University Press.
Bennett, L. (2003). New Media Power: The Internet and Global Activism. In J. Curran and N. Couldry (Eds.), *Contesting Media Power: Alternative Media in a Networked World* . Toronto: Rowman & Littlefield.
Boyd, D. and Ellison, N. (2007). Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication,* 13 (1).
Brabham, D. C. (2008a). Crowdsourcing as a Model for Problem Solving: An Introduction and Cases. *Convergence,* 14 (1), 75–90.

Brabham, D. C. (2008b). Moving the Crowd at iStockphoto: The Composition of the Crowd and Motivations for Participation in a Crowdsourcing Application. *First Monday,* 13(6). Retrieved from http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2159/1969

Brabham, DC. (Forthcoming). Moving the Crowd at Threadless: Motivations for Participation in a Crowdsourcing Application Moving the Crowd at Threadless. *Information, Communication and Society.*

Bucy, E.P. and Newhagen, J.E. (Eds.). (2004). *Media access: Social and psychological dimensions of new technology use*. Mahwah, N.J: L. Erlbaum.

Cheng, A, Evans, M and Harshdeep, S. (2009). Inside Twitter: An In-depth look inside the Twitter World. *Sysomos Inc*. Retrieved from: http://www.sysomos.com/insidetwitter/

Cote, M and Pybus, J. (2007). Learning to Immaterial labour 2.0: MySpace and Social Networks. *Ephemera*, (7), 88-106.

Cox, R. (2006). *Environmental Communication and the Public Sphere*. Thousand Oaks: Sage Publications.

Dean, J. (2009). *Democracy and Other Neoliberal Fantasies: Communicative Capitalism and Left politics*. Durham: Duke University Press.

Young, N. (2010, 14 March). Nora Young on Tina Roth Eisenberg. *CBC Radio*. Retrieved from http://www.cbc.ca/spark/2010/03/full-interview-tina-roth-eisenberg-aka-swissmiss-on-crowdsourcing-a-baby-name/

Gill, R. and Pratt, A. In the Social Factory?: Immaterial Labour, Precariousness, and Cultural Work. *Theory, Culture & Society*, 25(7-8), 1-30.

Green, J. and Jenkins, H. (2009). The Moral Economy of Web 2.0: Audience Research and Convergence Culture. In J. Holt and A. Perren (Eds.), *Media Industries: History, Theory, and Method*. Malden, M.A.: Wiley-Blackwell.

Hardt, M and Negri, A. (2000). *Empire.* Cambridge, Mass.: Harvard University Press.

Heil, B. & Piskorski, M. (2009, 1 June). <Harvard Business Review> New Twitter Research: Men Follow Men and Nobody Tweets. Message posted to http://blogs.hbr.org/cs/2009/06/new_twitter_research_men_follo.html

Howe, J. (2008). *Crowdsourcing: Why the power of the crowd is driving the future of business* (1st ed.). New York: Crown Business.

Howe,J . (2006). The Rise of Crowdsourcing. *Wired.com.* Retrieved 18 March, 2010 from http://www.wired.com/wired/archive/14.06/crowds.html

Johnston, J. (2008). The Citizen-Consumer Hybrid: Ideological Tensions and the Case of Whole Foods Market. *Theory and Society,* 37 (3), 229–270.

Klemann, F. & Gunter Vobb, G. (2008). 'Un(der)paid Innovators: The Commercial Utilization of Consumer Work through Crowdsourcing. *Science, Technology and Innovation Studies,* 4(1), 5-26.

Lévy, P. (1997 [1995]). *Collective Intelligence: Mankind's Emerging World in Cyberspace* (R. Bononno, Trans.). New York: Plenum.

Machlup, F. (1962). *Production and Distribution of Knowledge in the United States*. Princeton, N.J.: Princeton University Press.

Melosi, M.V. (2006). Environmental Justice, Ecoracism, and Environmental History. In D. Glave & M. Stoll (Eds.) *To Love the Wind and the Rain: African Americans and Environmental History* (pp. 120-132). University of Pittsburgh Press.

Miller, V. (2008). New Media, Networking and Phatic Culture. *Convergence,* 14 (4), 387–400.

Mosco, Vincent. (2008). The Problems of Outsourcing Knowledge and Media Labour. In J. Wasko and M. Erickson (Eds.) *Cross-border Cultural Production: Economic Runaway or Globalization*?

Amherst, N.Y.: Cambria Press.

O'Reilly, Tim. (2005). *What is Web 2.0?* Retrieved 8 March, 2010 from http://oreilly.com/web2/archive/what-is-web-20.html

Moser S.C. and Dilling, L. (Eds.). (2007). *Creating a climate for change: Communicating climate change and facilitating social change*. New York: Cambridge University Press.

Pew Internet Project. (2009). Twitter and Status Updating, Fall 2009. Retrieved 15th January, 2010 from http://www.pewinternet.org/Reports/2009/17-Twitter-and-Status-Updating-Fall-2009.aspx

Rosenwarne, S. (2002). Towards an ecological political economy. *Australian Journal of Political Economy*, 50, 179-199.

Ross, A. (2009). *Nice work if you can get it: Life and labor in precarious times.* New York: New York University Press.

Russill, C. & Nyssa, Z. (2009). The Tipping Point Trend in Climate Change Communication. *Global Environmental Change*, 19 (3), 336–344.

Szasz, A. (2007). *Shopping our way to safety: How we changed from protecting the environment to protecting ourselves.* Minneapolis: University of Minnesota Press.

Tapscott, D and Williams, A.D. (2006).*Wikinomics: How mass collaboration changes everything*. New York: Portfolio.

Terranova, T. (2004). *Network Culture: Politics for the Information Age.* Ann Arbor, M.I.: Pluto Press.

Von Hippel, E. (2005). *Democratizing Innovation*. Cambridge, Mass.: MIT Press.

Wall, D. (2006). Green Economics: an introduction and research agenda. *International Journal Of Green Economics*. 1(1/2), 201-214

Whitla, P. (2009). Crowdsourcing and its Application in Marketing Activities. *Contemporary Management Research*, 5(1), 15-28.