Jugaad-a Be Kidding Me:
Re-learning Resourceful Innovation From the Global South

by Chelsea Palmer, 2015

Globalization, Oppression, and Existing Resource Inequity

Post-colonial nations face a rigged game. Stallman (2002) shared the metaphor that if the competitive tendency of capitalism were a race, its current global enactment would involve handicaps for some runners, and rampant cheating strategies employed by others. He also explained his perspective that so-called "free trade agreements" really undermine global opportunities for democracy, by transferring the power to make trade decisions from the citizens of individual countries to transnational corporations. The economic regulations that characterize globalization are cruelly reminiscent of colonization itself (MacGillivray, 2006). In the Global North, after a long history of colonizing and conquering, we are used to calling the shots. We like to take what we want and then leave.

We're convinced that we created and perfected this globalized world, after all; as we controlled and tamed the face of nature, industrialized communities and built factories, and built up a seemingly inescapable consumer culture spurred forward by planned obsolescence. The ideological influence incited by colonial exploration impacted the directional change of the world, so we feel like we own it. We forget that hubris is one of the most dangerous flaws, and we ignore the reality that our ever-complicating output of devices and infrastructures is unsustainable, even dangerous, for the natural environment (United Nations, 2010). We set ourselves up for catastrophe, and enjoy our immediate comforts without an eye to the future.

Despite rampant utopian declarations of the Internet's power to change the lives of all global citizens, the majority of citizens in so-called developing nations, or the Global South, still don't have any online access. Although the proportion of people with Internet or mobile data access in Africa and South America grows rapidly each year, it still lags far beyond access rates in the Global North (Kende, 2014). In 2015, there are twice as many Internet users from the "developing world" as those from the "developed world," but these statistics do not yet adequately represent the proportion of the actual global population: there are still twice as many people in "developing" countries who do not have access to the Internet (International, 2015). In general, people who already live in affluent

regions are the ones who are most likely to have access to computers, cell phones, and data networks (Bruce & Hogan, 1998; Hampton, Lee & Her, 2011; Park, 2013). However, there are significant efforts underway to change this reality.

Free/Libre/Open Source Philosophy and Grassroots Innovation

True innovation has always asked "What is needed?" rather than "What will sell?" "Prescriptive technologies" perpetuate automation and efficiency, undervaluing human needs, while "holistic technologies" focus on localized and creative production (Franklin, 1990). "Sustaining technologies" provide small and subtle improvements upon existing tools, whereas "disruptive technologies" completely reframe the context and possibilities of solving a given problem, whether for better or for worse (Latzer, 2009). Radical breakthroughs rarely come from formulaic processes. Rather than from board meetings with powerpoints and flip-charts, material innovations generally come from hands-on problem solving, with adaptation based in the resources and materials at hand. This is the origin of the term "hacking." The inventors and "beta-testers" of any new technology "boldly go where no one has gone before." These enthusiasts "patch" the little problems that crop up, figuring out quick stop-gap fixes that will later be refined into universally compatible updates.

Stallman (2002) shared the opinion that the United States, in particular, is biased against the Free Software movement, and he suggested that there might be more flexibility within the societal paradigms of the Global South to endorse and develop this philosophy. People are less likely to capitulate to restrictive End User License Agreements on software in areas where sharing with their neighbours is the norm, not an abstract ideal (Stallman, 2002). In many areas of the Global South, families and even communities may share one cell phone among many people, reinforcing a more communal understanding of property (Fabricant, 2011).

According to Stallman (2002), it is wrong to withhold information that is useful to humanity as a whole. Before the term "open source" was popularized for software, the general designation for this movement was "free software." Though Stallman (2002) begrudgingly acknowledged that the shift in terminology makes functional sense to highlight the distinction from "non-commercial," he bemoaned the loss of the meaningful connection to the driving value of "freedom." For Stallman, sharing and collaboration in the free software movement is about empowering individuals through access to tools of technology. Such an embrace of freedom and empowerment requires attention to what these communities and individuals actually need, and respecting their cultural ways of knowing

and being in the world.

Jugaad and Resilience: What the Global North Needs to Learn from the Global South

Jugaad is a Hindi slang term which loosely translates to "frugal hack," and which conceptually represents the ability to overcome adversity by using limited resources to create effective solutions for complex problems (Radjou, Prabhu, & Ahuja, 2012). *Jugaad* is a unique and many-layered concept, highlighting the cultural tendency in India to confront problems on a case-by-case basis, rather than attempting to apply universal and standardized solutions (Giridharadas, 2010). As the mainstream capitalist markets of the world grow stagnant, and funding for research and development rises but returns diminish, this creative way of thinking may be what we need on a global scale (Prabhu, 2013). Jugaad creates accessible markets for new consumers, rather than merely designing cheaper goods for an already existent customer base. This opens the door for marginalized populations to obtain previously inaccessible resources, as the creative and frugal use of goods lowers cost barriers (Tiwari & Herstatt, 2012).

Currently, resource scarcity and volatile economic complexity characterize the global capitalist economy, and emerging markets in Brazil, China, and India are showing more significant growth than established markets (Radjou, Prabhu, & Ahuja, 2012). Corporations in these established markets devote continually increased funding to research and development, with diminished returns on these investments (Prabhu, 2013). The unique style of innovation embodied in jugaad seems necessary to revitalizing the nature of innovation in this economic climate. Jugaad's qualities of frugality, adaptability, and open collaboration are just what is needed in a stagnant global market (Radjou, Prabhu, & Ahuja, 2012).

The spirit of jugaad aims to turn discarded or undervalued resources into something useful, which is particularly valuable in an age of environmental unsustainability (United Nations, 2010). One example of such frugality is embodied in Embrace, a portable and low cost baby warmer which addresses the problem of premature birth in rural villages which struggle with poverty (Radjou, Prabhu, & Ahuja, 2012). This invention, which is a fraction of the cost of a traditional neonatal care unit, also weighs less than such machines, can be shipped flat, and sidesteps the need for a constant flow of electricity (Hicks, 2014). This single innovation allows for a great leap in combating infant mortality rates and promoting global health.

Gupta (2014) gave a detailed TEDxTalk on the strengths of jugaad, and went so far as to establish and explain an acronym of the term which summarizes its more subtle qualities. For Gupta, jugaad requires the ability to *juggle* a wide range of life experiences in an interdisciplinary fashion, *understand* the details of the problem at hand and the resources available on a deep level, and employ *guts* and courage in trying radically new approaches. Additionally, jugaad necessitates *adequate armour*, or the preparation of multiple adaptive backup plans, as well as *artistic manipulation* via the ability to "sell" the ideas and inspire enthusiasm in potential collaborators, and finally, a *"do-or-die spirit"* which leads the inventor to trailblaze with determination and commitment (Gupta, 2014). This creative approach to explaining jugaad, in itself, demonstrates all of the qualities which she describes, and subverts the traditional and formal academic structure of such discussions. To Gupta (2014), jugaad is ultimately "creative, but unsophisticated… makeshift, but always good enough."

Houle (2013) explored how the concept of place has changed drastically in the current age. Early civilizations separated by great distances were not even aware of one another, and the concrete idea of "place" began with the agricultural revolution when people first put down roots. Houle (2013) claimed that this fixed sense of space first began to shift starting two hundred years ago, as communication technologies from the telegraph onward began to "shrink" those spaces again. He pointed out that until wireless cellular connectivity, it was still necessary to plug in devices somewhere for data access, and that cell phones reshape the significance of "space" and "place" more than any other device has throughout history. This is further developed by the creative use of mobile technologies in Africa.

The Promise of Current Innovative Progress in Africa

Although Africa has a wealth of natural resources, and is considered by many to be the frontier for the newest wave of economic development, most Africans currently work in the informal economy without a safety net (Walla, 2014). Currently, more than half of the world population falls outside of the traditional economy, and much of this unstable economic existence is centered in rural African locations (Prabhu, 2013). However, an informal system of microfinance has gradually risen to prominence in Africa. Participatory microfinance lending collectives enable villages and communities to collaboratively enable individual savings and financial stability, thereby ameliorating the vulnerability which so often accompanies poverty (Bornstein, 2014).

Though the concept of jugaad originated in India, this approach to innovation can be seen in many of the current initiatives for community and economic development on the continent of Africa. The relevance of cellular connectivity to the African way of life can be reflected in the fact that while mobile subscriptions grow every year, in many African nations less than one percent of the public maintains access to a landline phone subscription (Poushter, 2015). However, major telecommunications companies make decisions on network provision based on potential profit, and so many poor and rural areas are denied access to potential cellular connectivity. Rather than potentially futile efforts to lobby for change in these massive companies, an affordable solution to this is to construct affordable local infrastructure for cellular network provision (Heimerl et al., 2014). As Shapshak (2015) emphasized, the supposed "dark map" which represents Africa's dearth of electricity is actually a positive thing for radical innovation, as it has led to the design of independent solutions that employ solar power and other sustainable energy sources.

Despite campaigns that aim to distribute advanced smartphones in the Global South, Fabricant (2011) pointed out that these will be impractical and inaccessible for much of the world's population for the foreseeable future. Instead, he proposed that working creatively with the available voice and text messaging capabilities of simpler cell phones produces, in the tradition of jugaad, more straightforward, innovative solutions to contemporary problems. Shapshak (2015) echoed this perspective, underscoring that Africa is a "*mobile-only*, not *mobile-first*" market. Rather than aiming to develop an African consumer market which mimics that of the Global North, local innovators are utilizing the near-universal embrace of SMS text messaging and pay-as-you-go airtime to provide new approaches to information and service access.

One of these initiatives is Ushahidi, a free open-source platform for the crowdsourced management of information during natural disasters, riots, and other social crises (Kobia, 2010). It has a map-based interface, and users can submit text-based tags to identify the degree of safety of various areas, plotting out the availability of resources, the extent of damages, and the locations in which help is needed (Mitchum, 2013). Such efforts to log people's movements through cell phone location statistics has been a useful way of understanding the spread of disease in Africa, as well as monitoring the fallout of natural disasters (Talbot, 2013). This serves as a reminder that the same tools which can be employed for seemingly dystopian surveillance can also be used in pursuit of scientific advancement.

Mobile applications which aggregate and disseminate this crucial health information,

particularly in relation to relevant medical crises on the continent, are quickly spreading throughout Africa (Talbot, 2011). Bright Simons of Ghana has addressed the serious problem of the sale of counterfeit medications throughout Africa, combining an SMS-based service with a commitment by all pharmaceutical companies to accompany their medications with a unique and non-replicable code of authenticity which can be checked by mobile phone (Pisani, 2012). Prakash (2012) and his colleagues developed a prototype microscope built from folded paper, solving the significant global health diagnostics problem caused by the high prices of equipment needed to identify various diseases in the field.

In addition to health promotion tactics, jugaad innovation is being utilized to solve crises of energy access in Africa. For the past two years, Henri Nyakarundi has run the African Renewable Energy Distributor (ARED) project, starting in Rwanda and currently scaling to the rest of Africa (van Vugt, 2015). ARED currently provides opportunities for people to franchise portable, solar-powered phone charging kiosks to operate their own community businesses, which benefits rural villagers by providing them with a cost-effective means to charge their cell phones. Similarly, Evans Wadongo confronted the issue of his fellow Kenyans' dependence upon kerosene lamps, which were unsafe and required costly fuel, by designing and distributing solar powered LED lamps (Vesperini, 2011). These approaches to energy problems suggest potential solutions for the larger global issue of environmental sustainability, as modern technology rapidly drains traditional energy sources.

Psychopolitical Validity: Responsibility to Humanity and the Environment

Though he claimed his viewpoint was apolitical, Lemert & Gillan identify the inherently political nature of the "truth [in Foucault's texts, which…] is not their historical accuracy, but their confrontation of contemporary reality with its past" (1982, p. 86). Foucauldian genealogy engenders a constantly adapting and critically reflexive viewpoint on what societies identify as truth, and how that truth influences behaviour and norms. In many ways, this Foucauldian perspective parallels Community Psychologists' dedication to maintaining vigilance about psychopolitical validity in praxis. Such psychopolitical validity requires recognition of the complex history of power dynamics, especially in terms of political exploitation and the inequity of resource distribution (Prilleltensky & Fox, 2007; Christens & Perkins, 2008).

Staying true to this awareness, any discussion about the global economy must confront the present state of affairs with its past origins in colonization and exploitation (MacGillivray, 2006).

Community Psychology prioritizes letting oppressed groups, such as post-colonial populations, speak on their own behalf, rather than employing so-called experts to intervene in their stead (Nelson & Prilleltensky, 2010). At the global level, this necessitates rewriting dominant narratives of who is or isn't "deserving" of access to resources and opportunities (Kelly, 2006). Grammatis (2015) opined that we could consider Internet access a new human right, given its crucial power to connect us as part of a "global citizenship" in the contemporary age. Internet access may be the greatest tool to engage in innovation and social change as we move into the future.

Psychopolitical validity also necessitates an appreciation of the foundational interdependence of communities and their environments, including the natural world. Guattari's (2000) warning that the contemporary world faces a crisis of political and environmental disequilibrium proves to be even more relevant fifteen years after its release. The current economic production practices in the global consumer economy are unsustainable and detrimental to the environment, and global governance organizations are attempting to put regulations in place to ameliorate this reality (United Nations, 2010). It simply makes sense to turn to the populations that have historically survived via frugal, creative innovation with limited resources in order to reduce this current global waste of resources.

With the proliferation of computer and cellular technology, violent war crimes in the Congo were funded by mining practices to obtain tantalum, a metal used for the hardware of these devices (Hutcheon, 2009; Jamasmie, 2013). However, Mbubi (2012) pointed out that, simultaneously, the widespread introduction of these mobile phones in the Global South allowed for citizens in this area to expose these practices on the world stage. His discussion of this issue, and the relatively successful campaign to raise awareness and pursue more ethical mining in the Congo, highlights the polar possibilities of information and communication technology for post-colonial nations.

The rapid and wasteful "innovation" of the Global North continues to gut the world's natural resources and produce significant pollution, but it also offers opportunities for truly creative innovation and adaptation of these technologies among marginalized people. As far as the continued production of devices, Mbubi (2012) proposed that the pursuit of fair trade design requires all consumers to ask straightforward questions before they purchase handsets: "Where does it come from? Who makes it? And for what?"

Chhatpar (2013) discussed how true innovation "comes from the many," and how it is the

authenticity of human stories, experienced by connecting to localities and fostering relationships with insiders, that motivates great changes in society. If we can encourage all global citizens to maintain vigilance, empathy, and creativity when it comes to resources and energy use in contemporary society, we may begin to compensate for unsustainable trends, embracing the best elements of *jugaad* and rejecting global exploitation.