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# Social Computing & Development

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## Abstract

Internet and social media use by individuals in developed countries is an extensively researched phenomenon, particularly in the fields of CSCW and HCI. However, with the growing number of social media adopters in developing countries, as well as the diversity of efforts to bring more individuals online, the need for more work in this area is evident. In this paper, we explore current research at the intersection of these fields, which we refer to as “Social Computing & Development” (SC&D). We highlight suggested areas where both fields might mutually inform each other in an effort to encourage additional work in this intersection.

## Author Keywords

Social Computing, HCI4D, ICTD, social media

## ACM Classification Keywords

H.5.m [Information interfaces and presentation (e.g., HCI)]: Miscellaneous; See [<http://acm.org/about/class/1998/>]: for full list of ACM classifiers. This section is required.

## Introduction

Internet and social media use by individuals in developed countries is an extensively researched phenomenon, particularly in the fields of CSCW and HCI [47]. Similarly, ICTD and HCI4D have traditionally focused on technology from a **usability** perspective [23]. However, with the growing num-

ber of internet and Social Networking Sites (SNS) adopters in developing countries, as well as the diversity of efforts to bring more individuals online, the need for more work in this area is evident from both the perspective of social computing and ICTD [7, 49, 47].

In a 2014 conference panel at CSCW, researchers from across a variety of disciplines gathered to discuss issues central to Facebook use in the developing world [49]. Through a discussion of the complexities and factors that impact Facebook use in ‘developing regions,’ the panel encouraged CSCW researchers to, “think more broadly and realistically about the contexts for which they are studying and designing collaborative systems” [49]. Through this paper, we hope to continue to call attention to the importance and need for this type of work, which we will henceforth refer to as, “Social Computing and Development” (SC&D).

Global development has long been central to the fields of ICTD and HCI4D, and, yet, there are differing (and at times conflicting) definitions of the term “development” [9, 23]. Traditionally, development studies have taken development to be closely related to efforts to increase GDP while paying attention to the growing economic gaps between different socioeconomic groups [9]. Going beyond GDP, Sen argues that, “freedom is both the primary objective of development and its principal means” [37]. Specifically, development should ultimately focus on whether individuals, “have the freedom to do what they have reason to value” [37].

With the emergence of information and communication technologies (ICTs), and the subsequent growth of the fields of ICTs and Development (ICTD) and Human Computer Interaction for Development (HCI4D), entities have increasingly focused on the relationship between technology and development. In order to define the term SC&D, we find Ho et al.’s definition of HCI4D as quoted in [23] to be

helpful: “any HCI research that addresses the needs or aspirations of people in developing regions, or that addresses specific social, cultural, and/or infrastructural challenges of developing regions” [20].

The study of social computing also emerged from the development of ICTs and the field of HCI [24]. In a 1994 issue of *Communications of the ACM*, Schuler defined social computing as “any type of computing application in which software serves as an intermediary or a focus for a social relation” [36]. More recently, Zeng et al. proposed that social computing is the “computational facilitation of social studies and human social dynamics as well as the design and use of ICT technologies that consider social context” [42]. With the emergence of Web 2.0, social computing research has increasingly focused on issues related to social contexts on the internet, particularly through social networking sites (SNSs) [24].

Drawing upon definitions of development, HCI4D, and social computing, we consider SC&D to be *research that addresses the needs or aspirations of people in developing contexts through the design, use, and study of ICTs that consider social context*. In the sections that follow, we first review a selection of the growing body of work that we consider to be within Social Computing & Development. Based on themes from prior research, we suggest directions for future work in this space informed by both the fields of Social Computing and ICTD.

## **Related Work**

Internet and SNS users are increasingly located outside of developed regions. Subsequently, researchers have begun to conduct work that crosses the borders of social computing and ICTD/HCI4D research [27, 8, 48, 5, 49, 22, 41, 47]. In recent years, efforts to expand internet access have

grown rapidly, with massive initiatives being undertaken by a variety of actors [15, 19]. Despite growing initiatives, as well as internet users, there are local barriers along political, economic, and social dimensions that continue to limit meaningful internet engagement for individuals in resource-constrained communities [8, 18, 34, 48].

In addition to illuminating how and why individuals appropriate the internet and SNS, growing work on that incorporates issues of social computing in developing countries speaks to the worldwide popularity of SNS. Studies in India observe that within one month of acquiring internet access on mobile phones, Indian youth in slum communities access SNS such as Facebook [32, 31]. Kumar (2014) explores the perceived affordances and subsequent benefits of Facebook use by youth from socioeconomically disadvantaged communities in India. In South Africa, Bosch (2009, 2011) examined Facebook use by college students and Chigano and Peterson (2009) look at the motivations and benefits of Facebook use. Among one of the most comprehensive studies of Facebook use, Miller's 2011 ethnography unpacks the complexities of social media use in Trinidad (Miller 2011).

While a desire to access and participate on SNS is well documented [22, 48, 45], multiple factors impact the ways in which individuals may access and use the site. In India, the introduction of high-speed broadband service in households led to "full-fledged exploration" of the internet, highlighting the importance of speed when considering internet use in low-access communities [34]. In Kenya, growing online participation, primarily on Facebook, is limited by high costs, technology access, and unreliable electricity, limiting use on the site [50]. In Ghana, youth face barriers to online engagement from pre-established Euro-American cultural norms as well as costs and connection speed [8].

Among Facebook non-users in Zambia, participants were interested in using the site; however, a variety of barriers prevented them from doing so [46].

Although barriers exist, studies of populations living in regions outside of the developed world show how persistent and creative individuals can be in obtaining internet access and accessing SNS [35, 6]. Individuals in developing contexts often rely on "intermediated interactions" to bypass issues of access related to literacy, financial, and technological constraints [35, 29, 14]. In rural Northern China, individuals use "information brokers" to assist them with their information needs [29]. In Palestine, research on a village that lacked internet access observed that individuals used internet connections at workplaces and a 3G network through an Israeli mobile phone provider to bypass access issues [44]. After the government shut down several SNS sites in Bangladesh for 3 weeks, individuals learned and taught others how to use VPN software to bypass bans [6]. In the context of Cuba, individuals rely on friends both inside and outside of Cuba to upload content for them on Facebook and conduct internet searches on their behalf [13].

In addition to studying the use of sites like Facebook in developing contexts, researchers have also worked on designing SNS that consider the needs, aspirations, and barriers of specific users [30, 5, 25, 26, 41, 40]. Many of these SNS have focused on illiteracy issues through the incorporation interactive voice response (IVR) technology [30, 5, 25, 26, 41, 40]. Others have focused on addressing problematic social issues, such as street harassment [2]. While not an exhaustive list, this work highlights themes of interest across the fields of ICTD, HCI4D, and social computing. Building on these themes, in the following section we suggest potential directions for future work in SC&D.

## Future Directions

Based on the research already underway in the SC&D space, and in an effort to encourage more work of this type, we now highlight potential areas of future research informed by the fields of social computing and ICTD. In calling attention to how these fields might inform one another, we aim to demonstrate how these fields might work together and contribute to research that considers these issues from both perspectives. From the perspective of ICTD, we highlight the need for future social computing work that considers issues of access and equity. From the perspective of social computing, we focus on the need for ICTD work that incorporates issues of identity and participation.

### *ICTD → Social Computing*

As evident from related work, online interactions are heavily mitigated by issues of access [35, 22, 13, 6]. The assumption of connectivity is often built into the design of social media networks and the internet itself. In contrast, for many users in low-resource communities, online interactions are heavily mitigated by periods of disconnectivity. Future work in this space should focus on how issues of access influence online behavior and how we might better support current practices in such contexts. As mentioned previously, researchers have documented instances intermediated technology use in a variety of contexts [35]. To this end, researchers have called for design implementations on SNS that consider these practices [6, 14]. While accessibility in some contexts may be limited to a lack of money or infrastructure, in other contexts this accessibility may also be due to other factors at play, such as government control. Issues of accessibility help to understand under-participation in some cases as well as illuminate constraints that may not be evident initially. Further, by comparing cases from various low-access regions, it may help to shed light on the complex factors at play in certain communities that have

been previously understudied.

In addition to access, SC&D work should be informed from the perspective of equity. One of the thorniest issues in work designed for “development” contexts is the pervasive power differentials between helpers and “helpees” [21]. The issues of power go beyond the relationship between researcher and participant to include international governments, NGOs, companies, and others participating in development work. When working with individuals in other cultures, a transfer of knowledge occurs, bringing with it questions of participation, legitimacy, and equity, among others [21]. However, historically, these questions have tended to go unacknowledged, overshadowed by an assumption that “our” ideas will “help” those living in other countries. Instead of viewing work as situated “out there” [38] or technologically designing for “the other,” future work in this space should seek to understand, “how all design research is culturally located and power-laden” [21]. At times, the power differentials are reflected in the design of certain technologies [43, 12, 3]. When practitioners fail to see how specific technologies operate within a cultural context, they put the potential for long-term change at risk.

### *Social Computing → ICTD*

Work within social computing has focused on both issues of identity and participation, which we believe to be crucial to future work in SC&D. Issues of identity have a rich research history within the field of social computing [11, 39]. Similarly, issues of identity have also been addressed within work that considers social computing in “development” contexts. Specifically for SC&D work, an increased focus on identity will assist in highlighting the ways that people who have normally been at the periphery are appropriating social computing tools to reflect values central to their identity as well as problematic issues that may arise. Social com-

puting tools may serve as a space where individuals may explore different aspects of their identity or work through social and/or psychological issues [39, 28]. For example, low-socioeconomic youth in urban India appropriate Facebook in ways that reflect their aspirational rather than “real” identities [22]. In Trinidad, “virtuality provides a kind of social laboratory or even liberation in which the performative character of all social realities and identities can be brought to light, deconstructed and transcended” [28].

In addition to the affordances that social computing tools may facilitate, identity issues online may also be problematic. Online, identity is co-constructed by individuals, their audiences, and design decisions, which essentially dictate which signals (or identity cues) people are able to use and how they use them. For example, individuals in low-access regions have been known to collaborate with others in order to co-construct their virtual identities, such as Cubans asking friends in other countries who have more access to the Internet to upload pictures on their behalf [13]. As more users get online in under-connected regions, more work is needed that considers complexities of identity in these contexts and how they influence community behavior.

Finally, SC&D work should also continue to explore how factors related to participation play a central role in the design, adoption, and use of social computing tools in “developing” contexts. When considering broadening participation in online communities, many individuals in low-access or developing regions have desires to access social media sites but a variety of factors impact their participation on SNS [22, 50, 49]. There has been a tendency for development work to cast a value-judgment on what is considered to be legitimate participation and interaction with new media [16, 22, 23, 33, 10]. Traditionally, priority has been given to ICTD work that seeks to make advances in development

areas such as education, good health, and finding steady employment [33]. However, focus should be given to participation centered on leisure-based uses of social computing tools [33, 22].

While ICTD researchers are increasingly focusing on providing internet access for the under-connected, we encourage more researchers to examine what happens *after* users in these contexts get access. To this end, social computing has much to offer. For example, SC&D work might focus on participation by drawing lessons from work in social computing that considers issues of privacy and how that affects participation [1]. Future work could consider how users in “developing” contexts understand and adopt privacy settings and how this impacts their engagement with social computing tools. For example, power relations are central to the increasing number of zero-rating services in developing contexts, especially in regards to who owns users’ data [4, 17]. Moreover, these individuals may not have the luxury to reject such a service and, instead, be relegated to a service that is deciding for them how and who owns their data [4].

By considering issues of access, equity, identity, and participation from the perspectives of both social computing and ICTD, we hope that future work will involve deeper engagements at the intersection of both of these fields.

## **At HCIxB**

Although the above list is not exhaustive, we hope it serves as a starting point for future explorations, encouraging researchers at the HCI Across Borders symposium who are interested in topics related to Social Computing & Development to further augment this list. Moreover, via the workshop, we hope to engage more deeply on topics related to SC&D with the goal of carving out additional spaces for

future collaborations of this type.

## Conclusion

This paper calls attention to the growing body of work on social computing in “developing” regions, which we describe as “Social Computing & Development” (SC&D). With the objective of encouraging further exploration and a deeper understanding of this area, we suggest a research agenda for future collaborations across existing domains and research focuses. We hope this paper serves as a starting point for more diverse conversations among researchers and practitioners at the HClxB workshop and beyond towards more responsible engagements by those whose work crosses the SC&D space.

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