Do Roads Restrict Innovation? The Role of Logistics in Participation

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Abstract
Logistics – the artful coordination of human and material flows – is central to contemporary development work and plays a crucial role in effective ICTD initiatives. We propose to study one key manifestation of logistics in ICTD: its role in participatory design. We propose to observe how an "innovation lab" in Phnom Penh, Cambodia, promotes grassroots involvement in their design work and the ways that participation is both made possible and bounded by logistical work. We will analyze how logistics stitches together technology designers, NGO/government project managers, and non-technical user-participants and how the conditions of geographies, infrastructures, and cultural difference both limit and shape that logistical work. We hypothesize that logistics - and the broader milieu logisticians are asked to operate in - has a substantial role in determining who participates in a project and the nature of that participation.

Author Keywords
logistics; participation; ethnography; international development; ICTD; Cambodia

ACM Classification Keywords
H.m. [Information systems]; Miscellaneous.

Introduction

Increasing non-technical user participation in the design process has long been a value in HCI [4, 7, 8] and, in ICTD, active participation from intended users of technologies is often seen as critical to the eventual uptake and success of a design [3]. Recent HCI scholarship has demonstrated the (often overlooked) interdependence between infrastructure and the use of technical artifacts [5], which is particularly significant in ICTD initiatives [9]. We propose to study the ways that the design process itself is similarly affected by the infrastructural milieu. We hypothesize that the *place* of design has particularly important implications when projects connect technology centers to peripheries and join up geographies of heterogeneous infrastructures, geographies, and cultures.

In order to get at this question, we will research the ways that logistics, which we define as the artful coordination of human and material flows, is central to participatory design in development contexts. We will study how geography and infrastructure limit who can participate, how much they can participate, and the nature of that participation in ICTD projects. We will also look at how logistical work can at times offset these barriers to participation. More specifically, we will investigate how conditions such as seasonality such as rain or heat, topography such as hilliness, road quality or jungle, and distance-from-center change the nature of participation. We will explore how cultural heterogeneity leads to mismatched expectations (for example, regarding 'timeliness' of movement) and ways that collaborators manage these misalignments. We will explore how breakdowns of logistical work can deepen asymmetrical power dynamics in these collaborative projects.

In order to address these questions, we will complete an ethnographic research project in the summer of 2016 at an "innovation lab" based in Phnom Penh, Cambodia. The lab, operating since the mid-2000s, builds technological solutions for "social good" projects, working with a network of partners (typically NGOs or government offices). The IT tools the lab builds range from smart mobile applications for keeping stock at rural health centers to desktop monitoring tools for government workers in urban settings to voice-based feature-phone tools aimed at illiterate migrant workers in rural areas. Many of their projects involve real-time information gathering in order to control problems such as disease outbreak, disasters, and famine. The majority of the lab's tools intend end users to be rural, non-technical Cambodians. The lab has historically worked with their partners in the field to build context-specific designs and this attention to context has been an important value in their design process. According to an interview we had with the director of the lab in January 2016, one of the current priority areas for the lab is to increase the amount and quality of grassroots participation in the design, implementation, and evaluation processes.

We propose a series of steps to understand better the ways that the lab encourages and facilitates greater participation in their design process. Over the course of June to August 2016, we will work out of the lab offices and observe their work processes. We will read various project proposals and other public and internal documentation, particularly related to project design. We will interview designers, partners, and the non-technical rural intended users who are involved in the design process. We will shadow trips that lab workers take from Phnom Penh to rural districts and their

interactions with non-technical participants. Our goals are to understand the intended design methodology and the ways that the lab and partners hope to increase grassroots participation. We will pay particularly close attention to how the project team decided which rural users participate in the design and their challenges and successes with increasing participation. We will also observe how the team arranges travel, how material and geographical factors play a role in this travel, and the implications of this travel on the types of information gathered from non-technical rural users.

A goal of this project is to highlight the (hypothesized) role of logistics to the international development sector (including ICTD) and the power of organizations to increase the voice and participation of outsider communities through effective logistical work in the design process. We further hypothesize that logistical work risks being exclusionary (intentionally or not) because of the difficulty of traversing of geographies, infrastructures, and cultures of particular difference. We hope this investigation sheds light on ways that these logistical practices can be supported and developed in fairer and more ethical ways without compromising the effectiveness of current work processes.

This in-depth study of smaller-scale logistics will also shed light on the ways that place-based investigations are still crucial in describing globally dispersed phenomena such as logistics and will therefore contribute a more nuanced understanding of the role of logistics in globalization. Though this study will focus on logistics that stitch together a capital city to rural areas, it will have implications on logistical projects that span other kinds of borders, such as large-scale private sector logistical work that spans national boundaries.

We hope that this analysis will have implications for understanding the nature of participation and constraints on effective participation in ICTD. We argue that the value of participation in the ICTD design process emerged from two contexts: the Scandinavian 'Participatory Design' program [4, 7, 8] and from policies encouraged by large international development funding bodies (such as the World Bank) since the mid-1990s [6, 10]. In some ways, these two contexts are opposed. The Participatory Design program was a political project of the historically well-organized labor unions of northern Europe. In development contexts, NGOs and governments often incentivize "participation" to improve top-down development projects, sometimes at the behest of their funders [2, 6]. Analyses of both of these contexts have shown how culture impacts the quality of participation. For example, when Participatory Design moved from Scandinavia to other settings where labor had a weaker role in politics and society, the politics and the nature of the participation fundamentally changed [1]. Other scholars have shown how the nature of participation in development is also dependent on local culture and, often, the power relations between the participants and the development workers [6]. We hope that this analysis contributes to this scholarship a deepened understanding of ways that that participation is also dependent on the material qualities of place.

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