Cultural Appropriation: Information Technologies as Sites of Transnational Imagination

Silvia Lindtner, Ken Anderson and Paul Dourish

Department of Informatics
University of California, Irvine
Irvine, CA 92767-3440 USA

{lindtner,jpd}@ics.uci.edu

People and Practices Research
Intel Corporation
20270 NW Amberglen Court, MS AG1-110
Beaverton, OR 97006
ken.anderson@intel.com

ABSTRACT

The diverse ways in which technologies are modified and appropriated into local contexts are an important theme in CSCW research. Today, translocal processes such as the formation of international corporations and the movement of people and ideas across nation states increasingly shape these local contexts of technology use and design. We draw from prior work on appropriation in CSCW and meld it with work from transnational studies to illustrate appropriation as a cultural phenomenon and as it unfolds in relation to emerging translocal processes. We ground our explorations in findings from ethnographic research on collaborations and exchange among IT professionals in urban China. This work makes two main contributions. First, it expands CSCW's focus on socio-technical systems by taking seriously socio-political and socio-economic processes. Second, it contributes to debates on cross-cultural and global technological development by employing transnational imagination as an analytical tool.

Keywords

Cultural appropriation, imagination, transnational, multi-sited ethnography, politics, globalization.

INTRODUCTION

CSCW has a long tradition of detailed observational studies of particular settings in which information technologies are deployed. One reason for this form of investigation is the observation that technology use in practice is often much more varied than system designers might anticipate. Information systems are often put to novel and unexpected uses, and they may be tweaked and transformed to achieve goals never imagined by their designers. Accordingly, "appropriation" – the adaptation and transformation of information systems after they are deployed – has been a topic of investigation for researchers in the field.

Broadly, two aspects of appropriation have received empirical and analytic attention. The first is what has been called "unanticipated use," in which a system is used to do something that its designers did not expect, *e.g.* [13, 28]. The second is "customization" in which specific features of a system that allow for its adaptation or transformation are used to allow end-users or their proxies to change aspects of the system's behavior. Examples abound in the HCI and CSCW literature, *e.g.* [8, 15, 25, 33], illustrating that tweaks and appropriations by the user are key in making technologies work for different needs and settings.

In this paper, we take appropriation of technology as our topic and examine it as a cultural process. Cultural appropriation, like technology appropriation, refers to the ways that people adapt and "make the technology their own." By cultural appropriation, we introduce an analytical lens that highlights two new aspects of the same process: first, the ways in which people take up technologies into the social, economic and political spheres of their lives through processes of imagination. By including the work of imagination, this approach stresses that appropriation is not only a matter of unexpected reuse or of instrumental transformation, but is also a matter of re-encountering technologies – that is, of finding them meaningful in new ways. Second, cultural appropriation takes into account that appropriation of technology is increasingly taking place within translocal contexts. With the internationalization of corporations comes an increase in translocal collaborations and mediation of images and ideas. As such, the appropriation of technology takes on alternate shapes providing challenges for design and research [18].

We ground our analytical approach in findings from ethnographic research on the local and translocal collaborations and circulation of ideas among IT professionals in urban China. In our ethnographic research, we were struck by how digital technologies provided our study participants platforms for thinking about local politics and Chinese modernity, as well as transnational relations and social stature in international circles. Even those participants, who did not travel geographically between countries, still spoke of technologies in relation to global media images and ideals of a cosmopolitan lifestyle. Our data illustrates that this cultural appropriation of technology in contemporary global contexts means more

than addressing the challenges of cross-cultural teams in international organizations or travel between global cities. It includes also how people imagine and articulate their participation across sites.

This paper makes the following two contributions: First, the focus on cultural appropriation allows us to account for the relationship between technical and non-technical practices such as articulation of collective belonging, economic interests and political discourse. This approach expands from CSCW's traditional focus on socio-technical systems theory and structuration theory [18, 25, 26] by taking seriously socio-political and socio-economic processes of appropriation. Second, this paper contributes to debates on cross-cultural engagement and global processes of technology development through the lens of transnational imagination.

Transnational Imagination

Faced with the complexity of contemporary global processes, what analytical tools can designers and researchers rely on? In this paper, we articulate how transnational studies, *e.g.* [3, 4, 24, 32, 35], provide an analytical sensitivity to help us better understand the role of appropriation in these contexts. Jones *et al*. suggest that future work on technology appropriation in a global context should expand from common analytical approaches such as structuration theory and socio-technical systems theory [18]. They stress the importance to further sociological debates in CSCW by drawing from global studies in order to develop new critical concepts [18]. It is exactly such an interdisciplinary analysis that we lay out in this paper. Our analytical frame of cultural appropriation, as such, melds core themes from globalization studies with prior research on appropriation in CSCW. We draw from two specific subsets of research in both disciplines:

From the CSCW and information studies tradition, we are building in particular on approaches such as socio-technical systems and interpretive flexibility by focusing attention on the creative aspects of technology appropriation, as well as on the material and historical boundedness of any technological innovation [18, 26]. From the global studies tradition, we propose transnational imagination to be a particularly fruitful starting point in approaching the challenges and complexities we face in the study of information technologies in relation to global phenomena.

Transnational imagination draws attention to the fact that global phenomena go beyond questions of travel and mobility [2, 20, 35]. It encompasses also movements of ideas, objects, and lifestyle choices, and works against reinforcing common binaries such as here versus there, developed versus non-developed. Prior research indicates that the work of imagination produces collectively-held notions about group identity, even if people have never met face-to-face or physically travelled, through the transnational circulation of ideas [2, 32]. Transnational imagination has found relevance broadly in anthropology,

globalization studies, and also research in Human-Computer Interaction (HCI), *e.g.* [2, 3, 4, 20, 35]. For example, Arjun Appadurai, proposes transnational imagination as *"a faculty that informs the daily lives of ordinary people in myriad ways: it is the faculty which allows people to consider migration, to resist state violence, to seek social redress, and to design new forms of civic association and collaboration, often across national boundaries."* While Appadurai focuses on electronic media, Chris Kelty, in his study of the Free and Open Source Software movement between the U.S., India and Germany, examines how transnational imagination unfolds not only through technical, but also legal and social practices: *"free software is more than just the code…, it is also what is accomplished socially and culturally through sharing, coding and distributed collaboration."*

Building on this prior research, we illustrate how digital technologies are sites of expression for identity, social belonging and political alignment. Acknowledging the role of imagination allows us to see that appropriation includes not only the tweaking a system for one's own immediate needs, but includes arguing about the meaning of technologies, debating the nature of collaboration, and reflecting on one's social and cultural capital.

Cultural Appropriation

Our approach towards cultural appropriation is grounded in two fundamental ideas. First, appropriation may lie in how technology is framed and articulated, that is, transformed not as a technical artifact but as a cultural object. Consider, for instance, the different social meanings associated with a communication that happens via face-to-face interaction, via email, or via SMS text messaging. Which technologies are appropriate for scheduling a meeting? What if the meeting is a romantic encounter or a family event? Technology use takes on particular resonances and meanings in different settings, and this process of encountering technology as having specific meanings and values is a form of appropriation [12].

The second is that, while we study appropriation in particular locales, it often escapes those locales. Translocal movements of ideas, people and objects, have altered the ways in which we relate to one another, across diverse local contexts [2, 3, 23, 24, 32]. The ways in which we appropriate information systems reflects ideas about who we are and who we might be, about how we are connected to others, about our roles in relation to them, and about how the places we find ourselves in are connected to others. Social networking technologies, for example, provide sites for performing ideas of community and connection; user-contributed media shape ideas about participation, publics and audiences [17]. Information technologies are frequently used for communication, but information technologies also allow us to emulate others or to distinguish ourselves from them, or to enact ideas about who we are, not only locally, but also nationally and globally. Our approach stresses the importance of

understanding technology appropriation as cultural encounter, rather than framing it as a linear model of knowledge transfer from West to East [4, 16, 30, 32]. Cultural appropriation, then, points not merely to the ways in which a technology is designed in Silicon Valley and then appropriated in China and "made Chinese," but to ways in which technology appropriation is always already a cultural process. Seeing culture as a process rather than as a pre-existing category taxonomized by regions, organizations or nation states allows us explore how technologies become meaningful dynamically, as they are appropriated in everyday life and as social activity unfolds [16, 30, 32].

METHODS AND FIELD SITES

We ground our explorations through ethnographic research in urban China. We draw from three interrelated sets of data collected between 2007 and 2010: 1) interviews with IT policy makers and urban planners and analysis of public media discourse throughout the four years 2) a six month ethnographic study in 2008 and 2009 on the technology practices of Chinese professionals working at international IT corporations such as IBM, Intel and Lenovo in Beijing and Shanghai and 3) a six month ethnographic study in 2010 of a group of freelance designers, artists and IT entrepreneurs working out of a co-working space *c-work*[1] in Shanghai.

Taken together, these three data sets provide an illustrative case of the recent shifts in technology practice in relation to urban, social and political changes in China. Fieldwork was predominantly conducted by the first author, who has training in the Mandarin Chinese language, and with support of the second author and language interpreters for formal interviews and transcriptions. Research took place in Beijing and Shanghai. These cities were chosen because they are major hubs for both national and transnational migration, the stage for international events like the 2008 Olympic Games and the 2010 Expo, and early adopters of new technologies.

Throughout this research, we employed a multi-sited ethnographic approach [10, 22, 35] to trace the connections and frictions between our ethnographic sites and how broader material, social, and cultural developments in China manifested in the specific practices of our participants. Multi-sited ethnography does not simply suggest that ethnography should be conducted in multiple places, or in different countries, in a comparative or holistic mode. Rather it begins with the assumption that local phenomena are in and of themselves inherently "multi-sited" through the kinds of global connections people make or imagine from within a single locale; it takes the relationship between sites as an object of ethnographic inquiry. Like previous work in CSCW and HCI that has adopted multi-sited ethnography, *e.g.* [4, 35], we trace the

connections and distinctions that our participants made between their own technology practices and others.

Multi-sited ethnography is based on standard ethnographic methods such as participant observation, formal and informal interviews. An important aspect of multi-sited ethnography is to bring in those actors who are influential in shaping the structures of connectivity and transnational encounters [10]. As such, our ethnography also includes engagement with the site of policy and those state actors, who have a significant role in shaping technology appropriation in China. For this purpose, we conducted interviews with members from the Chinese Internet policy department and urban planning bureaus. We also carried out archival work of policy and state documents, as well as discourse analysis of local media coverage concerning the broader IT development in China.

Fieldwork was highly participatory in nature. For the second group, we conducted observations, interviews, and took part actively in the collaborative leisure practices at an urban entertainment site that attracted many of the IT professionals our research focused on. With the third group, we collaborated on art and design projects, observed and participated in interactions and collaborations at the co-working space, as well as at conferences and public art events that our participants attended. This form of ethnographic engagement allowed an-depth understanding of daily work practices, the mechanics of the group's design and art practices, and nuanced changes in technology adoption over time. Interviews and participant observations were conducted both online and offline including offices, art galleries, homes, as well as Chinese and international social media websites that our participants use regularly, *e.g.* twitter, facebook, douban, sina weibo.

We now turn to our findings and trace material and semiotic linkages between these sites of technology appropriation. First, we begin by elaborating on the public moral and political debates about the appropriate use of technologies in China that shaped the collective understanding of technology among our participants. In particular, we focus on the appropriation of technologies for the expression of modernization discourse and national identity by Chinese state officials. We, then, continue by illustrating how Chinese professionals from international IT organizations and people at the co-working space appropriated technologies to express distinct lifestyles and ideas of cultural belonging. In the discussion, we analyze how, in each of these cases, technology appropriation brought people together through transnational imaginations and elaborate the implications of these findings for CSCW.

EXPRESSION OF NATIONAL VALUES

Information technologies broadly have become prominent subjects in debates over modernization in China [1, 24]. State media and government officials often portray Internet technology, and social media in particular, as an unsafe space that fosters crime and immorality. In calling the IT

---

[1] c-work is a synonym for the co-working space used throughout this paper.

industry a "double-edged sword," the China Internet Network Information Center (CNNIC), China's central governmental station of Internet policy, for example, acknowledges the incredible economic potential of the IT industry at the same time as it cautions that many users have "submersed" themselves in a habit that is described as negatively impacting people's ability to function normally at work, school and in everyday life [6]. CNNIC considers online games and many social media, for example, as a "threat to a healthy development of China's youth" [6] and, by extension, the future of a harmonious society and China's modernization. The stipulation of unhealthy effects such as Internet addiction and social instability have become the main impetus behind the government's efforts to control the IT industry. This manifested in a series of interventions, ranging from the operation of the "great firewall of China," which blocks the access to certain websites and censors particular content, to the installation of control mechanism on computer terminals in Internet cafes [27].

What we wish to illustrate here is that state actors appropriate technologies to support broader ideological shifts in their discourse. Through the narrative of a harmonious society, Confucianist values such as a healthy and balanced life are re-invoked by state officials and in policy documents. These values are used to promote contemporary market reforms, globalization processes and technological developments while simultaneously rendering them as deeply intertwined with Chinese socio-cultural traditions. The social imaginary promoted has concrete effects on the urban and IT landscape of many Chinese cities: Internet cafés, which used to be prominent sites of Internet access among Chinese youth and migrants over the last ten years, have been subject to raids and mass closings, Internet companies have been encouraged to take a "public pledge of self-discipline" and are subject to "service standards" that stress the production of "healthy" products [9, 27].

By these ideological expressions and their manifestations in technological and urban developments, state officials intend to create a particular kind of national imaginary for their citizens. Whereas urban infrastructures such as Internet cafes are disappearing, new developments drastically change the city landscape. Much of this recent re-design of Chinese cities is motivated by the desire to transcend a reliance on manufacturing to establish "world city" status in a global economy [19].

For example, in 2001, the 10th 5-year plan cites the establishment of a creative industry as a major project of cultural development in Chinese cities with the ultimate goal to grow China's soft power. [11] describe the origins of the creative industry policy discourse in the UK in the 1990s and how it has gained traction over the years in global debates and development strategies "*as a new engine of growth in developing countries…*" The import of the creative industry policy discourse into China corresponds with a broader ideological trend of appropriating foreign ideas and policies, while keeping in line with Chinese cultural values and belief systems [14, 19]. Terms employed by state officials such as "socialism with Chinese characteristics" reflect a post-Mao rhetoric of aligning modernization strategies such as the increase in foreign investment with the promotion of national autonomy – to modernize without being westernized [1, 24].

We see this again in recent narratives around re-designing Chinese cities to gain world-class cultural status. For example, in 2007, in his keynote speech to the 17th National Congress of the Communist Party, president Hu Jintao stressed the need to enhance Chinese culture as the country's "soft power": "*Culture has become… a factor of growing significance in the competition in overall national strength…* [we must] *enhance culture as a part of the soft power of our country to better guarantee the people's basic cultural rights and interests.*" The creative industry clusters are seen to provide exactly such "cultural development centers."

Our participants were by no means oblivious to discourses and policies surrounding their technology practice. On the contrary, many of them expressed discontent and distanced themselves from images of the Internet addict. Others attempted to leverage on these changes for their businesses. In previous work, we have shown in more detail how young people in China engage state discourse on Internet addiction and how this in part shapes their ideas of selfhood and their technology practice [21].

Although mobilizations of technological innovation in state discourse may have different consequences within the context of Chinese culture, politics and history, it is not a phenomenon unique to China. We stress here as a crucial take-away for CSCW to see appropriation of technologies in a locale like urban China not inherently and a-priori through a lens of othering. Indeed, fears about the negative impact of digital media use on youth also pervade public and media discourse in the United States and elsewhere. Subjects of common debate include the effects of video game violence, the dangers of online predators and access to pornography, and the impact of media multi-tasking on learning. Previous work addresses these various moral panics about the risks associated with the use of IT by children and youth [5].

Rather than ignoring these pervasive value expressions of a "healthy" technological integration or treating them as a separate unit of analysis, we regard them as an important factor influencing identity formation and the cultural appropriation of technology [12]. State actors deploy a range of strategies to proliferate a national imaginary of China's future as a global nation state. Media images and slogans such as the healthy and harmonious society, the dramatic urban change, IT policy and regulation are material manifestations of these imaginations for the Chinese nation and its values.

IDENTIFICATONS WITH A COSMOPOLITAN LIFESTYLE
We now continue by illustrating how modernization discourses manifested in popular entertainment clubs traversed by the IT professionals who comprised one of our ethnographic sites. We illustrate how the technological infrastructure in the clubs was designed to mark social differences and a cosmopolitan lifestyle.

The entertainment clubs that our participants regularly frequented offered a mixed media environment designed around a party game called the Killer Game, which became widely popular in China around 2006. The Killer Game is a role-playing murder mystery, a Chinese version of the Russian game Mafia or the American equivalent Werewolf. Succeeding in the game highly depends on players' skillful handling of argumentation and debate, observation and memorization. Before the game was taken up in the entertainment clubs, it was mostly played in people's homes and student dormitories. The entertainment clubs that offer Killer Game play in China today are exclusive urban spaces equipped with high-end interactive displays and sensor network technology. The first Killer Game club opened in Beijing in 2006, designed and built by one of our participants, Patrick[2], who had studied abroad for several years before he returned to China. By 2007, so Patrick told us, the franchise spread into other major cities in China and accumulated about 80.000 members. The clubs in Beijing and Shanghai, which we focused on in our research, mostly attracted young professionals from the IT and creative industry, who flexibly navigated China's urban hubs and also regularly travelled outside China for business, leisure and studies. Many of the people new to the clubs were returning after years abroad, often from the US or the wider Pacific Rim.

Upon arrival at a Killer Game club, one enters a main lobby with a reception and a lounge area for members to sit and chat. The walls of the lobby are equipped with high-resolution screens that display the list of members currently present in the club, their photos, nicknames and their in-game ranking. A quick glance onto one of the displays shows which of your acquaintances is on site. From the lobby, a series of gaming rooms can be accessed. The screens in the lobby and hallways display ongoing game sessions and distribution of players in the various rooms. The game rooms themselves are equipped with large displays and a computer terminal driven by the club's employees. The technology system in the rooms augments game play, triggers sound feedback based on actions in the game and records player activity. In addition, most of the clubs provide free WiFi access.

Our participants valued the social space and technical infrastructure of the clubs, because together they invoked an image distinct from the Internet café, which – as

illustrated in the previous section - has the reputation of attracting the lower socio-economic class and to be a place where Internet addiction thrives [27]. Most of our participants owned mobile devices and stationary computers in their homes, and were thus not dependent on public Internet access as many people, who frequent Internet cafes. The Killer Game itself was rendered a particularly meaningful leisure practice, because it invoked for our participants an image of cultural competency in local and transnational social networking. For example, our study participants repeatedly told us that the game originated in Silicon Valley – not in Russia where it was actually invented – and was brought into China by a transnational Chinese on his return to the homeland. When we asked if the Killer Game was, then, an American game, we repeatedly received answers like: *Of course not, this is a Chinese game*. Given that the Killer Game was invented in Russia yet imagined to originate from Silicon Valley, it is this underlying question of technology appropriation for cultural expression of transnational identification that we set out to explore in this section.

Local Distinction & Transnational Connections
A pervasive phenomenon we observed in the entertainment clubs was that people rendered their practices as inherently distinct from other technologically mediated leisure activities in China. For example, our participants often described themselves and others who frequented the clubs as displaying a distinct quality, especially in contrast to Internet cafés, which they described as attracting members of the lower socio-economic class. Summer, a member of a club in Beijing, articulated this as follows: …*people who come here* [to the club] *are of high* suzhi [quality]… *this game provides opportunities for you to meet people, people of a certain circle. Not everyone likes this game… it is not like, how should I say, not very mixed, only people of certain levels will be here to play.*

Suzhi, here invoked by Summer in the first quote, is a common rendering of status and class in China. The notion of *suzhi* was used to describe human quality first at the time of the idea of population control in the 1980s where China's failure to modernize was attributed to low quality of its population [14]. As modernization projects increased privatization, [1] suggests, *suzhi* appears again in new practices of social distinction and expressions of middle classness, *e.g.* defining a "person of quality" in practices of consumption and social mobility. Our participants invoked *suzhi* not only on the level of human quality and socio-economic status, but also with reference to the technological infrastructure of the clubs and their members' ability to connect to an international scene of elite networking. We illustrate in more depth below.

When we asked the owner of the club in Shanghai why he would not provide computer stations similar to the Internet café in China, he told us that he only needed a wireless network to attract members, who would bring their own mobile devices. Through a wireless infrastructure, he

---

2 Synonyms are used for all participants. English synonyms are used for those who introduced themselves via English names.

explained, members could visit websites without the gaming club having to restrict their access and subject their online activities to screening. This is different from Internet cafés, where commonly a series of mechanisms is installed on the computer terminals to restrict access and record online traffic [27]. In the clubs, the preference for wireless infrastructures was crucial for the owners' and members' concerted efforts to create a local environment that was distinct from establishments such as the Internet café.

Our participants considered not only the technological infrastructure, but also the Killer Game itself as representing a distinct social status. Many considered the skills they acquired through playing the game crucial for their jobs in international companies or their own businesses in China and abroad. One of our participants, Zhen, left China 8 years ago to study and work in the U.S. Zhen described his experiences in the clubs as training him in the kind of "international thinking" he considers to be a necessary skill for employment in Chinese companies today: *I think this club really helps people to speak their opinion. In Chinese enterprise, people are more and more outgoing these days, this is a good thing… this game is training you for international thinking*.

What we illustrate here is that technologically-mediated experience was imbued with values of socio-economic class. Our participants drew upon the socio-technical space of the clubs to position themselves within a changing economic and social landscape in China that was portrayed as becoming increasingly international. In the beginning of this section, we alluded to how study participants perceived the game as inherently Chinese, despite it being invented in Russia, and imagined it as having originated from Silicon Valley. While the Killer Game was clearly being appropriated into Chinese culture, participating in it also entailed being able to relate to a world of transnational connections and an international lifestyle. This appropriation as a remixing of an existing game and cultural values of "international thinking," as one of our participants put it, lead to the design of a particular kind of transnational experience: a leisure practice that granted local distinction. People associated the game with international corporations and a cosmopolitan lifestyle that, once adopted, grants access to transnational networks of social relations.

In these processes of distinction making, technology helps people to situate themselves within broader social hierarchies. The appropriation of technology can function as a marker of cultural capital, socio-economic class identity and of belonging to a transnational elite.

THE CREATION OF A TRANSNATIONAL CLASS
We now turn to findings from ethnographic research at the co-working space c-work based out of Shanghai, which attracts an eclectic mix of technology designers, new media artists, bloggers, freelancers and young entrepreneurs. At the time of the research, c-space was located in an old factory that had been remodeled into a series of design studios as part of the larger urban re-design to stimulate creative production in China (described above). c-work provided desks for rent on an hourly, weekly or monthly basis, similar to co-working spaces in the U.S. and Europe. People who frequented the space were from abroad and China. At the physical site of c-work, on its website and across various social media that its members and visitors are using, people mostly communicated in Chinese and English. c-work's co-founders and people who frequented it regularly gave talks at international tech events such as the local TED (Technology Entertainment Design), at Chinese and international art & design festivals. c-space also regularly hosted events, including for example academic discussion forums, maker workshops, dorkbots and barcamps.

Across these activities, individuals associated with the space promoted collective ideas of technological innovation and digital creativity. In what follows, we illustrate how a transnational imaginary was produced through this collective appropriation of the notions "sharing" and "co-working" as a core work ethic.

Appropriating Usable Pasts to envision Global Futures
Daily work life in c-work comprised not only collaboration with others on technology design and art projects, or the production and sharing of code. Our participants also wrote about their work and reflected upon it. In these reflections on their work, they appropriated ideas and values from the past or from other places, and mixed them in order to give meaning to their technology practices. For example, the name that space chose for itself, makes this practice of remixing immediately visible. Translated into English the name stands for *new workunit*, an appropriation of the term *workunit*, which refers to state-owned institutions during the cultural revolution in China. The *workunit* constituted a core organizing principle of social transformation after 1949 [22], breaking up the large city population into smaller collectives that provided employment, housing and social benefits for workers and their families. It is this underlying practice of appropriating something so central to organizational life in China's past, and re-making it into something "new" that we set out to explore in this section.

The writings that members of the space produced had at the core two fundamental ideas: co-working and open sharing. Both were thought of as work ethics for the age of the Internet and as having originated in IT hot beds of the U.S. and Europe. The space coupled these concepts with themes relevant in the context of China. In mixing ideas about co-working and open sharing with ideas of creativity and innovation currently promoted in China, the space positioned its own designs, collaborations and texts in alignment with local and international values.

For example, co-working constituted not only a model to rent out space on an hourly, weekly or monthly basis. It was fundamentally deployed as a work ethic continuously

promoted at international tech events hosted in China, *e.g.* TED, and in daily conversations with one another. Co-founders of the co-working space positioned co-working as a new form of organization that mixes the benefits of social media with those from the physical work space: *The nature of work is changing. So the nature of work space is changing. It has culture and is an environment that promises for the future. This is about combining elements of the physical workspace, of being productive, with social media, which means to be hybrid, to be efficient in real time.*

This practice is reminiscent of what Kelty [20] describes as the appropriation of "*usable pasts, [which are] less technical and more accessible narratives that make sense of the contemporary world by reflecting on the past and its difference from today... they are told not in order to remember the past, but in order to make sense of the present and of the future*" (p. 65). Across various talks, c-space's co-founders elaborated how co-working matters for a new form of creativity and innovation in China today. c-work drew its inspiration from a mix of resources, including the past, to make sense of China's presence and future. One of the co-founders, for example, frequented a co-working space during her time in Europe before she returned to China and ever since regularly accessed a Google group focused on co-working. She described both, the co-working space in Europe and the Google group, as *"inspiring and cool places that trigger my creative side."* Others drew inspiration from an array of websites on DIY or from texts on free and open source software such as Lessig's "Free Culture." Our study participants debated the role the past and new work ethics co-working play in China, both face-to-face and in online conversations. They reflected together on the meaning of these ideas for their own efforts and for social and economic change in China today.

In addition to co-working, another central work ethic that proliferated at c-space was the idea of open sharing. One of c-space's most active members, an acclaimed blogger, promoted sharing as a new creative force for China, which he entitled Sharism: *Sharism promises to be the politics of the next global superpower. It will not be a country, but a new human network joined by social software… new collaborative technologies will allow us to query, share and remix information for the public benefit… [it] is an ideology for our Internet Age. It is a philosophy piped through the human and technological networks of Free and Open Source software. It is the motivation behind every piece of User-Generated Content. It is the pledge of Creative Commons, to share, remix and give credit to the latest and greatest of our cultural creations.*

In and beyond the co-working space, Sharism was referred to as a symbol for Chinese creativity and innovation enabled by global and interdisciplinary collaboration. As visible in the quote above, Sharism was inspired by works like Creative Commons and by the Silicon Valley free

culture movement. c-space not only promoted Sharism at tech talks and on the web, but also incorporated it into their material practices. For example, the interior design of c-space and its website were continuously re-designed to reflect a work ethic centered around open sharing. For example, opinions expressed by people who rented the space, or ideas that speakers at conferences put forward, found their way into the arrangements of furniture and computers and the ever changing visuals of the website.

What we observed across c-work's work ethics, its material manifestation in space and technology design was the inherent belief that a "better China" can be accomplished through a collective re-making of the past and the presence, performed with both local and international partners. It was through this circulation of ideas and their manifestation in material practices that brought together a set of people who identified themselves members of a larger, like-minded collective. The collective was in flux in terms of its members' transnational mobility, but stable through its shared ideas of building a new creative workforce.

DISCUSSION
In this paper, we return to a traditional topic for CSCW research, that of appropriation, and approach it via a non-traditional route. Our goal is to examine the cultural work of appropriation alongside the organizational and the technological. Two sets of contributions emerge from this work. First, we illustrate how appropriation as a cultural process is not necessarily geographically bound, but often evolves across multiple sites, through practices of imagination. If we take contemporary forms of mobility and transnational mediation seriously as important aspects of technology design, we need to explore the specificity of different technologies, their material and cultural forms as they span across diverse places, cultures and value systems [17]. Second, with cultural appropriation we suggest a widening notion of the socio-technical in CSCW in order to see material and social practices in relation to political and economic processes. Cultural appropriation does not constitute a subcategory of technology appropriation nor does it describe a process that comes after a technology is modified. Rather, it emphasizes appropriation as process of meaning making that can occur through both technical means and processes of imagination.

Transnational Imagination
The role of technology in global and cross-cultural processes has become a central debate in CSCW research [7, 16, 30, 31, 34]. Our approach contributes to these efforts by providing a new conceptual tool for understanding the circulation of technologies and their values. This approach resists more common efforts in CSCW and HCI that assume culture as a taxonomic category defined by geographically bounded spaces like the nation state to assess their different implications for design. Transnational imagination allows us to see a city like Shanghai or Beijing, or a site like the Killer Game Clubs or the co-working space in Shanghai as already in and of

themselves heterogeneous nodes, rather than illustrative cases of a pre-assigned cultural category.

By highlighting the role of transnational imagination we draw from transnational studies, in particular Appadurai's seminal work [3]. Appadurai explores the confluences of modern travel and electronic media and their effects on the production of cultural identity, locality and belonging in a transnational era [3]. He investigates, for example, how people who have never met face-to-face come to think of themselves as Indonesian, Chinese or American. He suggests that the "mediascapes" produced by mass media offer new resources for the construction of identity and imagined selves across places, social and cultural practices and values. This approach leads to a broader understanding of "movements", one that does not just entail literal and physical travel, movement of people and goods and services, but also the movement of ideas, discourses and modes of thoughts. Our technological systems today are similarly part of these processes, shaping a collective imagination of "who we are." They are imbued with meanings and values that span across locales, along with the traditional media forms that Appadurai describes.

The work of imagination, especially when collective, Appadurai suggests, can become fuel for action in that it creates ideas of locales such as neighborhood and nationhood [3]. Imagination of who we are and where we belong, he suggests, are interwoven with transnational developments: such as the formation of international corporations, global markets and trading agreements, the movement of objects and ideas across national borders. For Appadurai, electronic media intensify these processes and make them available as part of everyday practice. This notion of imagination applies to our findings on digital technologies practices in urban China, wherein the technological systems we examined are sites of imagination in relation to both local and transnational developments.

Two important implications for CSCW arise. First, building on transnational studies, we begin to see appropriation of technology through processes of both connection and friction. Rather than assuming stable flows and connection across places and different value systems, transnational imagination focuses on the experiences of people and highlights how connections across places are continuously in the making through the economic, social and political struggles people face, as well as their aspirations and expressions of belonging [24]. The appropriation of technologies into local contexts can not be understood independently of political, historical and economic contingencies that both enable and control movements of people, things and ideas [3, 24].

Second, the lens of transnational imagination illuminates that appropriation is not a linear model of transfer of practices from West to East. In line with a recently emerging line of research in HCI, we contribute by providing a nuanced understanding of the role of technology in global processes that is not inherently about designing for the so-called developing world or the culturally "other" [16, 30]. We stress that much can be gained by an approach that considers technology appropriation in contemporary global processes not a-priori through distinctions such as how we "in here" versus others "out there" [30] use technologies and make sense of the world. Rather, we suggest seeing technology appropriation as a cultural encounter. For example, in this paper, we have highlighted how in particular locales cultural values, and economic political and social interests are negotiated as different actors come together. This view suggests understanding the design and use of technologies as sites of negotiations rather than through stable categories.

Collective Expression of Values
Our work shows that in appropriating technologies people produce not only content or tweak software code, but also create new meanings and values. These values are not determined by the technology, but evolve in relation to political alignments and economic interests. For example, the co-working space in Shanghai positioned its work in alignment with Chinese values of modernization as well as with international ideas of an open and free Internet. Ideas and work ethics from the past, from other places, from old and contemporary value systems, were appropriated in order to give meaning to technology practice today. In the Killer Game clubs, the mixed-reality space was the site for expressing *suzhi* differences to others in China, while also providing the opportunity to connect international network of IT professionals. And in the case of Internet addiction discourses mobilized by state actors, technologies are appropriated for the expression and production of national values such as harmonious development, which simultaneously function as images in transnational politics.

An area of consequence of this work for CSCW is the analysis of collaborative systems in terms of collective imagination. Many contemporary systems of interest to the CSCW community, including online games, user-generated content systems, and multimedia sharing systems, lie at the intersection of interactive systems, popular media and political discourse. In this paper, we elaborated how political discourse on IT development and its uptake in media is a pervasive phenomenon that shapes the meaning of technologies across local sites. We typically approach CSCW technologies from an interactive systems perspective, focusing on triggers and barriers to adoption and use and the emergence of forms of technologically-enabled practice. An interesting complementary approach is to see technologies as cultural forms, with an emphasis on cultural practice, ideology, communication, values and genre [12, 17].

We suggest that the lens of collective expression of values, allows us to see collaborative systems not only as socio-technical artifacts, but also as a cultural object. Approaching collaborative systems as a cultural object allows us understand the involvement of a range of actors

in a given locale and how they collectively shape the meaning of technologies. For example, we show through our findings how state actors appropriate technologies for their own means: to further an agenda of modernization and to motivate a political project of a harmonious society.

Friedman and colleagues highlight the importance to include the values of a range of stakeholders into both the research and design process of a technological system [12]. We follow their approach by studying how values are being expressed and evolve through interaction, rather than seeing them as inherently inscribed into the technology [12]. We suggest it to be fruitful to merge these prior efforts in CSCW with Graeber's historically grounded anthropological theory of value [14]. While Friedman *et al*. focus on a specific list of human values with ethical import, Graeber more generally sees value as the way that actions become meaningful to the actor through incorporation into some larger, social whole, real or imagined [14].

In comparison to Friedman *et al*., then, our approach is at once more specific and more general. It is more specific in that, rather than assuming a set of universal values, it considers values as they are enacted and/or imagined [32]. It is more general in that it traces how values are taken up as cultural reorientation across different sites and in relation to global processes. For example, we explore how values of open sharing and co-working, which have come to permeate debates in open-source communities and IT politics globally [20], are taken up in China and made meaningful in relation to both national policy and political debates as well as translocal processes of exchange and collaboration. The notion of appropriation can easily be read as empowerment of the user. By including the role of state actors into the analysis of technology appropriation, we elucidate how the politics of design and use unfold through contemporary socio-political processes and technological values. Our approach illuminates the creative ways in which people respond to political debates and decisions, but also how at the same time new distinctions and systems of power emerge.

One particularly important issue of relevance to CSCW that this perspective opens up is to see "collective" processes of technology appropriation as a site of analytic attention. When CSCW first emerged as a research topic, attention to "collaborative" aspects of technology use emphasized that the field of Human-Computer Interaction had typically focused on a single user and neglected the settings in which technologies were put to use amongst multiple people. It signaled, then, a move from one to many. An attentiveness to "collective" experience, by contrast, signals a move from many to one; that is, it attempts to understand how different people, with different, partially overlapping understandings of the world give rise to collective phenomena that transcend but shape individual experience. In our analysis, by focusing on information technologies as sites of imagination for a range of actors, we examine collective phenomena. Like ethnomethodological analyses in CSCW

have drawn attention to intersubjective, more-or-less shared "knowledge in common," this perspective helps us to understand how collective interpretations of technology arise.

CONCLUSION

In this paper, we describe what we see as a shift from technical to cultural appropriation. Cultural appropriation provides a sensitizing concept for designers and researchers investigating interactions and collaborations across different sites, and translocal movements of ideas and technologies. It melds prior work on technology appropriation in CSCW with seminal work from transnational studies. To illustrate, we draw from ethnographic research on translocal collaboration and exchange of ideas among IT professions in urban China.

Cultural appropriation provides a constructive analytical lens for studying the role of technology in translocal processes. It resists the traps of more common models of linear transfer of knowledge from the West to the East, from here versus there. Our approach suggests that drawing from transnational studies allows us to engage socio-political and socio-economic processes such as the workings of systems of power, ruptures of flows, distinction making practices and how collective ideas of technological meanings and selfhood arise. At the heart of this exploration lies the role of transnational imagination which helps illustrate how particular locales are already in and of themselves culturally and socially diverse, rather than homogeneous entities that intersect through global flows.

REFERENCES

1. Anagnost, A. *National Past-Times. Narrative, Representation, and Power in Modern China*. Duke University Press, 1997.

2. Appadurai, A. 1999. Globalization and the research imagination. Published by Blackwell Publishers.

3. Appadurai, A. *Modernity at Large: Cultural Dimensions of Globalization*. University of Minnesota Press, 1996.

4. Burrell, J. and Anderson, K. 2008. I have great desires to look beyond my world: trajectories of information and communication technology use among Ghanians living abroad. New Media Society, 10:203.

5. Cassell, J. and Kramer, M. 2008. High tech or high risk: Moral panics about girls online. In McPherson, (Ed.), *Digital youth, innovation, and the unexpected* (pp. 53-76). The John D. and Catherine T. MacArthur Foundation series on digital media and learning. Cambridge, MA: The MIT Press.

6. CNNIC 2009. *Statistical Survey on the Internet Development in China,* last accessed in Jan. 2010.

7. Diamant, E.I., Fussell, S.R., Lo, F-L. 2009. Collaborating across cultural and technological

boundaries: Team culture and information use in a map navigation task. In Proc. of IWIC, 175-184.

8. Dourish, P., Adler, A., Bellotti, V. and Henderson, A. 1996. Your Place or Mine? Learning from Long-Term Use of Audio-Video Communication. Computer-Supported Cooperative Work, 5(1), 33-62.

9. Ernkvist, M., & Strom, P. 2008. Enmeshed in Games with the Government: Governmental Policies and the Development of the Chinese Online Game Industry. *Games and Culture, 3*(1), 98-126.

10. Falzon, M-A. (ed). 2009. Multi-sited Ethnography. Theory, Praxis and Locality in Contemporary Research. Ashgate.

11. Flew, T & Cunningham, S. 2010. Creative Industries after the First Decade of Debate, The Information Society, 26:2, 113-123.

12. Friedman, B., Kahn, P. H., Borning, A. Value Sensitive Design and Information Systems. 2006. In Zhang, P. and Galletta, D. (Eds). Human-Computer Interaction in Management Information Systems: Foundations. M.E. Sharpe, Inc: NY, pp. 348 – 372.

13. Fulton Suri, J. + IDEO. thoughtless acts? Chronicle Books LLC, 2004.

14. Graeber, D. Toward an Anthropological Theory of Value. The False Coin of our own dreams. Palgrave, 2001.

15. Heath, P. Hindmarsh, J. and Luff, C. *Workplace Studies. Recovering Work Practice and Informing System Design*. MA: Cambridge, 2000, University Press.

16. Irani, L., Vertesi, J., Dourish, P., Philips, K., Grinter, R. 2010. Postcolonial Computing: A lens on Design and Development. In Proc. of CHI'10, 1311-1320.

17. Ito, M. Engineering Play. A Cultural History of Children's Software. MIT Press, Cambridge, Massachusetts, 2009.

18. Jones, M. Orlikowski, W. and Munir, K. Structuration Theory and Information Systems: A Critical Reappraisal. In Mingers, J. and Willcocks, L. (eds). 2004. Social Theory and Philosophy for Information Systems. John Wiley & Sons, Ltd.

19. Keane, M. 2007. Created in China: The great new leap forward. London: Routledge.

20. Kelty, C. 2008. Two Bits: The Cultural Significance of Free Software and the Internet. Durham, NC: Duke University Press.

21. Lindtner, S., Nardi, B., Wang, Y., Mainwaring, S., Jing, H., Liang, W. 2008. A Hybrid Cultural Ecology: World of Warcraft in China. In Proc. of CSCW, November 2008, San Diego, California.

22. Lu, Xiaobo & Perry, E. 1997. Danwei. The changing Chinese workplace in historical and comparative perspective. Sharpe, New York.

23. Marcus, G. E. 1995. Ethnography in/of the World System: The Emergence of Multi-Sited Ethnography.*Annual Review of Anthropology, 24*(1), 95-117.

24. Ong, A. 1998. *Flexible Citizenship. The Cultural Logics of Transnationality*. Duke University Press.

25. Orlikowski, W. 1995 Evolving with Notes: Organizational Change around Groupware Technology. *Technical Report (IFSRC No. 314-95), MIT, Sloan School of Management*, Cambridge, MA.

26. Pinch, T.J. and Bijker, W.E. 1984. The Social Construction of facts and artefacts: or how the sociology of science and the sociology of technology might benefit each other, Social Studies of Science, 14: 399-441.

27. Qiu, J. L. 2009 *Working-Class Network Society. Communication Technology and the Information Have-Less in Urban China*. Cambridge, MA: The MIT Press.

28. Robinson, M. 1993. Design for unanticipated use…. *In Proc. of the third European Conference on Computer-Supported Cooperative Work*. pp. 187-202.

29. Star, S.L. and Strauss, A. 1999. Layers of Silence, Arenas of Voice: The ecology of visible and invisible work. *In Proc. of JCSCW, Journal of Computer Supported Cooperative Work*. Vol. 8, N. 1-2, pp. 9 – 30.

30. Taylor, A. 2011. Out There. In Proc. of CHI'11, 685-694.

31. Thom-Santelli, J. Millen, D., R., DiMicco, J., 2010. Characterizing global participation in an enterprise SNS. In Proc. of Conf. on Intercultural Collaboration, 251-254.

32. Tsing, A. 2004. Friction. An Ethnography of Global Connection. Princeton University Press.

33. Trigg, R. H. and Bodker, S. 1994. From Implementation to Design: Tailoring and the Emergence of Systematization in CSCW. In Proc. of CSCW 94, pp.45-54.

34. Weibert, A. & Wulf, V. 2010. "All of a sudden we had this dialogue…": Intercultural computer clubs' contribution to sustainable integration. In Proc. of Conf. on Intercultural Collaboration, 93-102

35. Williams, A., Anderson, K., Dourish, P. 2008. Anchored Mobilities: Mobile Technologies and Transnational Migration. *Proc. of DIS'08*, pp.323-332.