Chapter 3
Section 1: The Social Space

Paul M. Aoki and John C. Tang

The development of the media space implementations drew on art installations and architectural conceptions of spatiality for initial inspiration. However, discussions of the impact of media spaces have always included social responses and implications as well. As Bly, Harrison, and Irwin (1993) noted:

> *The people participating in the media space have the greatest influence on the ways in which it will be used. The ways of working that people bring to a media space and create in that space can vary greatly. However, characteristics of the setting and the technology are also important in how a media space is used and what it becomes. We consider the setting to include the individuals using the technology, the relationships among these individuals, and their activities.*

The notion that a media space must be understood as embedded in a setting, or a technosocial situation (Ito and Okabe, 2005) that is largely socially defined is now often rendered in shorthand: "media spaces connect people." The above passage highlights this point, and also reminds us to keep in mind each of the individual elements – individuals, relationships, and activities – that relate a media space to the people who use it.

Over time, much of the research on media spaces has examined the dynamics of this embedding. That is, rather than focusing on theoretically derived design arguments or on technical novelty, these inquiries have focused on the social processes by which a media space "comes to be" a media space instead of a computer system. Such studies are not only about what people "do" with a media space, but also about how it is adopted and appropriated, how the practices of its users stabilize into communities, or how its availability shapes users' behaviors and perceptions.

P.M. Aoki
Intel Research Berkeley
e-mail: aoki@acm.org

J.C. Tang
Microsoft Research
e-mail: johntang@microsoft.com

S. Harrison (ed.), *Media Space 20+ years of mediated life*,
Computer Supported Cooperative Work,

While this research shares a common emphasis on the social construction of media spaces, it can be useful to divide these inquiries into two general arcs.

Stable Environment

The first arc is what might be described as the *stable environment* arc. In this arc, a communication technology is used to connect a collection of people who have existing relationships and relatively clear reasons to interact. The most common social unit studied is that of an office workgroup or a collection of such workgroups. This includes many of the classic empirical reports of media space use, such as that of Bly, Harrison, and Irwin (1993).

The goal here is typically what is glossed in the Introduction as "[understanding how] elements of understood social practice are used in mediated ways." While any environment can be expected to change over time, the relative stability of the goals and constitution of these kinds of groups often lead to a convergence of practices within a group. Indeed, we are often able to tie together results across studies of different groups and different technologies.

For example, we can see that just as the spatial definition of media spaces has its landmark features (always-on, high fidelity audio–video connections, real-time awareness), its social construction also has some core elements. Groups used media spaces to *share awareness and context* surrounding each others' activities. This affordance in turn enables people to *socially negotiate starting interactions* with each other at appropriate times and situations. Overall, media spaces were often used to *coordinate activities* among the participants. These general activities are often seen in informal workplace interaction (Whittaker et al., 1994), but they play out with different specifics in media spaces. As the chapter by Luff, Kuzuoka, Heath, Yamazaki and Yamashita shows, this is especially true when the activities involve access and reference to social and physical resources outside the scope of the media space.

As a second example, stable environments lend themselves to nuanced investigations of difficult issues such as privacy. Because participants generally have ongoing relationships as well as the time to negotiate with each other and reflect upon outcomes, the privacy questions that arise are different from issues raised by strangers in a similar situation. The complexity of these issues can be seen in the fact that these explorations continue today and indeed will likely never be completed in any meaningful sense. The chapter by Boyle, Neustaedter and Greenberg provides a systematic and insightful theoretical guide to privacy issues that have arisen thus far.

As a final example, there have been many fruitful investigations of what happens within organizations as media-based interaction becomes widely available. These range from highly informative case studies of use within workgroups to larger examinations of adoption within organizations (Bly et al., 1993).

The stable environment arc has been and continues to be extremely productive. The designers of the early media space systems at PARC, Bellcore, University of Toronto, etc. were able to refine their concepts by deploying systems in the context of their own workplaces. Indeed, the best-known uses and applications – linked common areas, office share, video window, and so on – came out of these highly productive explorations. However, if we posit that media spaces can be socially constructed from a design space broader than the well-defined technological configurations used at that time, it is clear that only a fraction of this design space could be explored in the laboratory.

Design Elasticity

This leads to the second of our two arcs, which might be termed the *design elasticity* arc. Since the deployment of the initial media spaces, researchers have pushed on the design space by varying more widely the kinds of settings that can be established. This again poses the definitional question – how much can we change the setting and still know that it constitutes a media space?

In cases where designers are varying one or two specific dimensions (such as the physical context, the activities supported, or the technological medium used) in a straightforward way, this problem might be best addressed through the hoary adage that we know it when we see it. That is, one can draw on the reports from the early media spaces to identify particular orientations on the part of the users and then identify these same orientations in new settings. To use a simple technological example: can we think of the Interval audio spaces (Ackerman et al., 1997) as media spaces even though video was "left out"? From the reports we have of their use, the answer seems to be "yes." As we suggest elsewhere in this volume, drawing connections of this kind between old systems and new systems can still be very informative.

The definitional question becomes more acute – and interesting – as the setting is changed more radically. In particular, recent designs often aim to enable situations in which the activities are less focused or instrumental – on facilitating forms of interaction that are better characterized in terms of pure sociability (Simmel, 1911/1950) or play (Caillois, 1958/1961) as opposed to "work" or "tasks" in their commonly understood meanings. These design explorations can be seen as testing the boundaries of the design space in the following ways, among others:

Elasticity of relationships ("audience"). From studies of use within groups of social familiars (colleagues and friends), we have seen an expansion into studies of what a media space means for ad hoc configurations of strangers, for collections of what are essentially familiar strangers (Milgram, 1977), and for communities defined more by weak ties than by strong ties. In this section, these are exemplified (respectively) in the chapters by Churchill and Nelson; by Friedman, Kahn,

Hagman, Severson and Gill; and by Karahalios. In the other direction, we have seen preliminary examinations of media space use in relationships that are more intimate than those usually found in the workplace. The chapter by Burge and Tatar provides initial insights into the specifics of interpersonal conflict in mediated communication.

Elasticity of experience. From systems that mainly use media to provide a high degree of fidelity with face-to-face interaction, we have seen an evolution toward providing reduced-fidelity representations that are not simply designed to enable obfuscatory "privacy" but are instead designed to require active engagement to explore and interpret. The chapter by Karahalios explores this design space and summarizes her experiences with several different systems of this type.

Elasticity of temporality. From the early emphasis on synchronous media and direct interaction between users, we have seen an emphasis on use of asynchronous media and of very different ways of using content to "draw in" users into initial states of engagement and "draw back" users as time goes on. In their chapter, Churchill and Nelson reflect on user engagement by drawing on their years of experience with emplaced media installations.

Elasticity of setting persistence. From environments in which the participants and sites were relatively stable, we have seen more exploration of settings that change over time. Mobility is one of the most important drivers for accommodating changes of environment. The increasing prevalence of public and semi-public displays also illustrates new environments to explore, as Churchill and Nelson demonstrate.

As might be expected, the goal in this arc tends to be more explicitly design-oriented. That is, even though an understanding of the social processes is still primary, the motivation is generally to tie this understanding back into concrete design points. The most common approach is to look at deployments of several media space variations and consider them in a comparative way. In some cases, the variations are chosen from reports on separate lines of research system and product use and the comparisons are knit together retrospectively (Our own chapters in Section 3 are examples of this). In other cases, researchers ambitiously produce these variations through systematic exploration of a design subspace. For example, one line of research (represented here by the chapter by Churchill and Nelson) takes the same basic asynchronous communication system (i.e., touchscreen-based Web applications designed for semi-public use) and deploys customized variations for a range of different audiences. By contrast, another line of research (of which the chapter by karahalios is representative) focuses on synchronous interaction within a particular type of audience (i.e., strangers) but then varies the experience through the use of very different systems.

While the two general arcs differ in the way in which the research is framed and explored, they clearly share an emphasis on the dynamics of how groups come together and how this is shaped by the design of a system. While each of the spatial, social, and embodied communication perspectives cannot help but include large aspects of "the social," work of the kind described here falls somewhere in between the metaphoric nature in the spatial perspective and the detailed particulars of interaction in the embodied communication perspective.

Social Appropriation

An overlay on both arcs is a dynamic sense of *social appropriation*. As Ito and Okabe (2005) illustrate, the use of technology in a social setting leads to discovering new ways for its application. Media spaces started with the relatively simple proposition of outfitting workspaces with cameras and displays that could be connected under computer control. The socially agreed-upon uses that emerged over the past 20 years fill this book and more with a diverse range of applications. Sharing presentations over distance, encouraging impromptu interactions through remote common spaces, maintaining awareness of team members in different time zones, and sharing news and other timely status updates around the globe have all evolved from the initial media space experiences. While the media space research prototypes have helped the users discover the value of awareness and lightweight communication to support collaboration and coordination, these socially constructed functionalities may be accomplished without any video connections in the future. In this sense, the socially defined notions of media space may transcend technical implementations of the early research prototypes.

Along with socially invented ways of using the technology come socially agreed-upon conventions and mores around appropriate uses. The nature of media spaces has provoked thinking about how to address privacy concerns in such a connected environment. As observed in the conclusion of the chapter by Friedman et al., socially agreed-upon conventions of privacy continue to evolve as the pervasiveness of video has been extended and people gain more familiarity with its liabilities and limitations.

Reflecting on what we have learned from a social perspective on media spaces provides a nice complement to the spatial and embodied communication perspectives. While media spaces may have been one of the first systems to demonstrate the benefits of issues such as contextual awareness for social negotiation and coordination, we can apply the observations from this research to guide the ongoing evolution of technology. Indeed, as we note in Chapter 26, our understanding of the social response and appropriation of media spaces can explain the popularity of many systems that have emerged since then, such as IM, photo sharing, and video sharing. Furthermore, that understanding can be used to guide the design of new technologies that bring the social affordances of media spaces closer to widespread deployment, even though it may come in a very different form than the early research prototypes. These chapters explore a variety of approaches that help guide the design of future of socially constructed media spaces.

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