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STS and Area Studies: A Social Network Perspective

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Abstract The focus of this article is to explore how regional academic networks, including balanced global and local relationships, can contribute to the development of science, technology, and science studies and area studies in Asia. On the one hand, local scholars can employ global connections to pursue continuous collaborative academic activities from a region to the world, to learn various information, and to address local issues all over the world. On the other hand, local researchers can utilize local networks to organize locally significant research topics, to create a platform for theory building with regard to specific social contexts, and to create research synergy at different spatial scales.

Keywords Social networks · Area studies · Globalization · Localization

1 A Preliminary Statement about East Asian Studies

It is very important for scholars to study particularities in the area of East Asia since local experiences have not been theorized systematically in the academic community. This point is especially significant in science, technology, and society (STS) studies because science and technology are often taken to be universal and homogeneous all over the world, and the development of science and technology is assumed to follow a linear model in most societies. A particularity approach with the emphasis on case studies will contribute to theoretical development in STS if we recognize East Asia as an open region in which both local and global factors shape the development of science and technology.

In my own study of integrated circuit (IC) industrial development in Taiwan, I found that the balance of local and global interorganizational ties avoids lock-in

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effects in this industrial network while contributing to the receipt of new information and facilitating path-independent technology collaboration (Chen 2008). Taking this as an example, we can treat local social or economic phenomena as both local and global events to some extent. Some case studies in East Asian societies will contribute to revising or creating general theories, while others will tend to highlight special mechanisms working at local levels. Therefore, we must keep our epistemological positions open in order to appreciate possible contributions made by East Asian studies.

In addition, a non-ethnocentric area study can help scholars become sensitive to asymmetrical power relationships among different regions. This power-sensitive STS approach tends to be a critical one that challenges the ideology of progress behind science and technology. On the one hand, scholars of East Asian societies need to examine whether or not one-directional diffusion of Western science and technology into these societies can improve the quality of life and reduce social inequality without leading to environment pollution, technology dependence, and health risks. On the other hand, they need to pay attention to the dominance of East Asian societies over Southeast Asian, Middle Eastern, or even African societies through the mechanisms of foreign investment, science and technology transfer, and international migration of workers. Positioned at the semi-periphery of the world system, East Asian societies become meaningful cases for studying both the core countries and peripheral countries.

Finally, the area study of STS should be sensitive to both intended and unintended consequences of science and technology traveling across borders. In Taiwan during the Japanese occupation period, the colonial state introduced many new technologies that it then used to consolidate power. After 1945, the Nationalist party-state followed the same mode of governance, with very strong support from the American government to bring in new technologies. In the late 1980s, Taiwan moved into an era of technology-intensive industrial development. Multinational corporations replaced the state as the most active agents in transmitting technology from one region to another. The power relationships behind technology transfer were more implicit than in the colonial period because the state was not on the scene and the rhetoric of interregional technology transfer was usually accompanied by the idea of national competitive capacity. When most people take technology upgrading for granted as part of national economic development, there are very few challenges to this mode of cross-nation technological linkage.

At the world-system level, intensive technology transfer has often reinforced the existent core–semi-peripheral–peripheral structure. For example, as already noted, the Japanese colonial government increased its political legitimacy in Taiwan based on science and technology. People residing in the colonial territory had difficulty developing an alternative framework with which to challenge the colonial scientific governance. In postcolonial times, technology-intensive industrial development in local societies, with great help from leading foreign corporations equipped with advanced knowledge, has tended to reinforce economic and social inequality because only a small proportion of local people can be recruited into these high-tech sectors.

Universalism of technology may wipe out local differences in both developing and using knowledge. Contemporary development in science and technology has a

tendency to converge in a few leading innovative technologies, such as nanotechnology, biotechnology, and information–communication technology. One country after another pours resources into these fields, but only a limited number can finally succeed after this fierce competition. The unintended result is a collective waste of resources.

On the positive side, the institutionalization of modern medicine during the Japanese colonial period in Taiwan unintentionally incubated many doctor–political activists who organized grassroots associations against the colonial government (Lo 2002). Asymmetrical power relationships between local people and the colonial government were thus challenged in various ways.

2 Social Networks and Area Studies

As I mentioned before, IC industry development in Taiwan is based on a very specific form of network organization. Similarly, networking among social actors in science and technology plays a significant role in constructing the meaning of science and technology (Latour 1999). The emphasis on social networks in both the sociology of organizations and STS study may lead to a new interpretation of "area study." Obviously, social networks are established in a given location, but they keep expanding outside the boundary and including external actors. An open social network in an area can function as a strong engine for maintaining local distinctiveness by means of clustering effects. Meanwhile, it can serve as a conduit for employing external resources to avoid negative impacts of over-embeddedness (Uzzi 1997). It is very important to notice that an area-based network must remain open as well as relatively autonomous in order to develop a contextualized area study.

To integrate social network approaches into area studies does not mean to ignore the historical traditions of a given area, but rather to avoid narrow-minded indigenous theoretical frames that can lead to diverse versions of local-oriented dogmatism. The starting point of most social studies is a specific area with its own historical tradition, social conditions, and specific power position in the world. Scholars of the area must fully recognize the importance of these characteristics to their empirical studies. Open social networks based on this area can then serve as a platform for diffusing all information as well as resources both inside and outside of the geographical boundary, and many possibilities for the development of area studies will emerge. Particularities in this area can be significantly highlighted by comparing it to other areas, while the specific characteristics can be arrayed in a broad regional context (such as Japanese colonial history), leading to an innovative region-scaled theory. Yet another possibility is to mix local elements with external ingredients organically. For example, according to Parales-Quenze (2004), laypeople in Colombia tended to combine their own cosmopolitan vision with Western scientific knowledge to perceive the risk of genetically modified foods. In East Asia, too, we can observe hybridization of traditional beliefs and modern knowledge elements.

For a very long time, researchers in East Asia concentrated on learning Western social science theories but developed few theoretical insights derived from their own societal experiences. This was the stage of knowledge transplantation from Western societies. In Taiwan in the early 1980s, a serious concern with the weak connections

between social science studies and local societies incited debates on localization of social sciences, largely because of changes in Taiwan's status in international politics and social divisions about national identity (Hsiao 1982; Yeh 2001). After a great number of sociologists trained in the West returned in the 1990s, systematic local studies began, and social scientists started to discover the distinctiveness of their own societies and compare them to other societies. Thus, sociological studies moved into the stage of insiders' indigenous study.

From the end of the 1990s on, Taiwan greatly increased its external economic, cultural, and social dimensions while huge numbers of marriage and labor immigrants moved to the island. According Ministry of Interior statistics, 400,000 marriage immigrants came to Taiwan in 2007—mainly women from China (65.5%) and Southeast Asian countries (34.5%). This significant change in the demographic structure has many very important effects on public policies, societal mentality, and academic research. Both laypeople and sociologists in Taiwan have been gradually realizing that they are a strong majority group undergoing an influx of immigrants. This is an excellent opportunity for Taiwan's sociologists to rethink what "localization" means in the face of "globalization."

Taiwanese sociologists have begun to study various dimensions of these immigrants, which will help develop a new framework of indigenous sociology to some extent. First of all, the concept of "the local" needs to be opened up. For instance, Fung and Liang (2008) followed some of Taiwan's Vietnamese immigrants back to their hometowns to study the effects of these original social linkages on their everyday lives in Taiwan. Second, "the global" can no longer be limited to Western influences on Taiwan's society; rather, the significance of Southeast Asia and East Asian connections must be emphasized. "Globalization" thus contains various meanings for Taiwanese society that differ from those generated either by its long-term colonial history or by its subsequent intensive, export-oriented economic development. Finally, Taiwan's sociologists must reposition the content of their indigenization of the social sciences and expand their concern with mainly Taiwanese experiences to include diverse immigrants' histories. At the same time, they need to be very sensitive to power relationships between Taiwan's people and newly arrived immigrant groups, as emphasized by postcolonial approaches (Fu 2007).

These very recent immigrants have shown interesting processes of internal globalization and have redefined the meaning of "the local." Laypeople's social networks brought by immigrants are another way to broaden the scope of both area studies and STS. Because these new immigrants have become an important minority group in Taiwan, South Korea, and Japan, East Asian STS researchers need to incorporate their worldviews when examining issues such as the social construction of scientific knowledge, risk perception of science and technology, and science and democratic participation. Indeed, STS literatures about Southeast Asian societies have become crucial to East Asian researchers' understanding of societal phenomena, whether within a given nation or in East Asia as a whole. It is also necessary for the East Asian STS community strengthening its academic links with Southeast Asian scholars to exchange research results and form collaborative research teams. These efforts can keep academic networks very open.

Newly created societal linkages between East Asia and Southeast Asia also have some implications for East Asian specialists in area studies. Although foreign

investments of East Asian countries in Southeast Asian countries started in the early 1970s, very limited social and cultural exchanges occurred between these two regions. The recent massive immigration from Southeast Asia to East Asia has changed the patterns of regional linkages and the degree of closeness between these societies. Thus East Asian researchers need to recognize that Southeast Asian societal characteristics are organic elements of their own cultures now. New studies can focus on the intensive societal interactions between "original" societies and emigrated societies, and on the subsequent impacts on both sides.

3 Networking, STS, and Area Study

The idea of networking highlights the importance of an academic organizational base for both East Asian STS and area studies. In other words, both particularities and generalities in this area can be systematically discovered, mainly by means of intensive academic exchange and enthusiastic research collaboration in conjunction with contextualized theoretical paradigms.

According to Su's (2004) study on citation practices in prestigious Taiwan sociological journals, Taiwan's sociologists mainly refer to articles and books by Western researchers and rarely read academic publications by their colleagues. There is only limited academic exchange among members of this sociological community. Since many of Taiwan's sociologists are trained in the USA, academic networks have been established primarily between Taiwan and Western societies. As a result, the picture of academic networking in the Taiwan sociological community is one of weak local connections coupled with rather strong Western linkages. Obviously, the missing piece is linkages with other Asian countries. This lack of organizational academic infrastructure hinders Taiwan's sociological community from incorporating common Asian societal and historical backgrounds with local particularities into its theoretical development. Even more importantly, there has been no real channel either for diffusion of Taiwan's academic research or for cross-nation academic communication.

Fortunately, Taiwan's STS community did not follow the same networking pattern as its sociological community but established good connections locally via workshops, lectures, and informal gatherings. These STS scholars founded the Taiwanese STS Association in 2008 and began publishing its official journal in Chinese, *Science, Technology, and Medicine*. Earlier, Taiwan's informal STS network made some efforts to create connections with STS scholars from Japan, South Korea, China, and also from the West. It is particularly significant that the East Asian circle holds an annual STS meeting and Japan, South Korea, China, and Taiwan take turns hosting it. This academic organizational infrastructure has been further strengthened in 2007 by launching the journal *East Asian Science, Technology, and Society (EASTS)*.

On the one hand, although *EASTS* started with East Asian STS societies, it has not restricted itself to this region. The editorial board has invited contributions from STS scholars from European and American societies and is deliberately expanding the journal's networking base. This "open boundary" approach will gradually involve more scholars interested in East Asian STS, so that the journal will be based on balanced academic ties among Asia, Europe, America, and other regions, just like the organizational network of Taiwan's IC industry. This organizational structure can

also sensitize East Asian scholars to regions and issues they might otherwise ignore and thus help them avoid theoretical as well as empirical bias.

On the other hand, systematic presentation of research articles in *EASTS* has shown possible ways to understand STS phenomena in East Asia. It has also encouraged Asian scholars to engage in academic discourse among themselves and with Western scholars. For example, the issue of science, technology, and citizen participation is mainly the product of long-term efforts among Taiwanese, Japanese, and South Korean scholars in this field. These scholars have been discussing their experiences in practicing different citizen-participation methods and possible implications for democracy and scientific knowledge. Wynne's (2007) constructive critique of these empirical studies examines both problems that citizen participation methods will face in these societies and the development of science and democracy theories in general. Obviously, before the publication of such research articles, there was much academic discussion that extended beyond the East Asian community. The establishment of *EASTS* can facilitate such academic networking and exchange both in Asia and all over the world.

The lesson of East Asian STS networking for area studies is that a solid organizational infrastructure is very important for coordinating academic efforts in empirical study and theoretical development alike. It is not necessary to follow the STS networking model rigidly, but the principles of balanced social connections, substantial academic exchange, and an open boundary approach are essential. Based on this balanced academic network, a given area of study can receive innovative ideas and reach out much more to scholars in different societies to broaden the scope of the discipline, just as the East Asian STS community has done.

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