

A knowledge network for communication policy research in the Asia-Pacific?

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The importance of knowledge for development (K4D) is well established. The notion that knowledge networks makes K4D more effective is also gaining importance.

The questions that I plan to address in the presentation today are as follows:

- How do we know a knowledge network, if we see one?
- How do networks come about?
- Does CPRsouth represent a knowledge network?
- What could be the future directions of CPRsouth?

I address these questions as a non-CPRsouth researcher. My own research is broadly in the area of knowledge for development and knowledge networks.

A typology of knowledge networks

There is a variety of typologies in the literature. A typology should fit the purpose, and purposes of studying networks can be many.

Clark (1998) proposed a typology of four networks which he labeled informal networks, information access networks, open networks and development networks, but he did not give an analytical framework that rationalized the typology. Wagner and Leydesdorff (2005), in their study of international collaborations in science, use the two dimensions of centralization and organization to derive four typologies. They capture degrees of centralization through the centralized v. distributed continuum and the degrees of organization by the organized v spontaneous continuum to present four idealized cases – (1)centralized/organized; (2) centralized/spontaneous; (3); distributed/organized and (4) distributed/spontaneous that describe the types international collaborations in science.

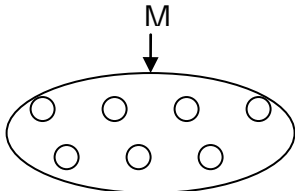
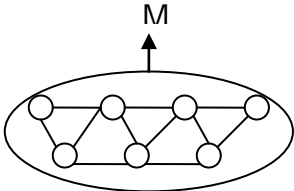
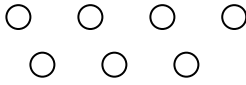
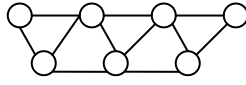
Following along the same lines but with the purpose of understanding ‘the building or the emergence of networks’, we propose to use the degree of connectivity and the degree of organization to capture the various steps in the process of building networks. Specifically, we propose to use a horizontal dimension representing links that signify knowledge exchanges relevant to any topic of interest, with the lowest level of connectedness represented by discrete nodes.

The vertical dimension represents the extent of organization among the nodes. When all nodes are at the same level they are in flat organization. As the nodes become more organized some nodes move vertically or some other entity M may impose a certain level of organization on the nodes.

We illustrate four idealized cases in a 2X2 diagram. In the 2X2 figure given here, we first present a set of nodes as discrete/flat nodes in Quadrant B but in quadrant C we present the same set of nodes in an increased state of connectivity. For simplicity, in C, we present a

case where every node is connected to all the nodes in the vicinity, but the extent of connectivity can be as high as each node being connected to every other node in the group or as low as one link per each node. This type of arrangement represents a natural network. In quadrant D we find an organized knowledge network where such a group may choose to organize themselves as an association, for example.

In quadrant A in the figure, we show an organization with one link from a node M to a group of other nodes via a single organization structure (depicted by an oval encircling all the other nodes). An example of such an organized group of nodes is a group of researchers that is brought together by a research project to produce co-authored scholarly outputs but the funds are under the control one of more researchers in the group. We don't call such a set up knowledge network if there are no significant knowledge interactions between the component nodes. In this instance we may simply call such an entity a research project or a development project.

Organize	<p>e.g. Development project</p>  <p style="text-align: right;">A</p>	<p>Organized Network</p>  <p style="text-align: right;">D</p>
	 <p style="text-align: right;">B</p>	<p>Natural Network</p>  <p style="text-align: right;">C</p>
	Discrete	Connected

Do we have knowledge networks in CPRsouth?

CPRsouth2007-Asia Pacific is an initiative to bring together researchers communication policy in developing Asia to meet and learn from each others efforts. Meetings or development projects of this nature are often labeled erroneously as knowledge networks. A network becomes a knowledge network only if there are knowledge exchanges between the nodes

In August 2005 we did some preliminary work to identify researchers in telecom reform research in South Asia. The purpose was to identify researchers to attend a networking meeting to be held in Djakarta. We were keen to go beyond the 'grapevine' or the network of people known to us to identify productive researchers from across Asia. We started out with research universities in Asia but found only lists of people without much useful information about their productivity. Next we used the term 'telecom* and India' for example to search for researchers in India or with knowledge about India. We searched the social science citation indexed journals to find a few names, but we were more successful using the then newly launched search engine, scholar.google.com.

Established Researchers

By established researchers in this instance we mean those who have contributed one or more scholarly works to the field of telecom policy. By using a combination of Social Science Citation Index (SSCI) and scholar.google we were able to find 353 names of researchers who have been productive in telecom reform related areas in Asia.¹

, Specifically we found:

- 353 names from 16 countries in Asia.²
- A high diversity is demonstrated among the researchers in terms of the sector they represented (Academic, 44%; Government, 7%; Industry, 17%; Not-for-profit, 31%)
- A high diversity is demonstrated among the researchers in terms of the disciplines they represent (Communication studies, 45%; Engineering or computer sciences, 25%; Management, 20%; and Other, 10)
- Although 59% of the 353 researchers were cited by other researcher, only 10% of the citations came from of the other 352 researchers from Asia.³

¹ The focus of this study is South, East and South East Asia. The region includes China, Taiwan, Japan, North Korea, and South Korea (East Asia); Afghanistan, India, Pakistan, Bangladesh, Nepal, Bhutan, Sri Lanka, and the Maldives (South Asia); and Brunei, Cambodia, East Timor, Hong Kong, Indonesia, Laos, Malaysia, Myanmar, Singapore, Thailand and Vietnam (South East Asia). Details can be found in : Rohan Samarajiva and Sujata Gamage. Bridging the Divide: Building Asia-Pacific Capacity for Effective Reforms. Accepted for publication in The Information Society (see lirneasia.net/documents for a preprint).

Sujata Gamage and Rohan Samarajiva . From Capacity to Presence: Enhancing the Usability of University Research in the Internet Age. Accepted for publication in Information Technology and International Development, MIT Press (see lirneasia.net/documents for a preprint).

² China, Taiwan, Japan, and South Korea (East Asia); India, Pakistan, Bangladesh, Nepal, Bhutan, Sri Lanka (South Asia); and Hong Kong, Indonesia, Malaysia, Singapore, Thailand and Vietnam (South East Asia). That is all but North Korea, Maldives, Brunei, Cambodia, East Timor, Laos and Myanmar in East, South East and South Asia.

³ We found the data on collaborations to be misleading. Almost all researchers had at least one coauthored papers

The data on citations do not point to much awareness of each others research by telecom reform researchers in Asia. Although the group 353 researchers here may be familiar with each others work or use each others work, our indicators do not capture such activity unless such activity is recorded as a citation in a document that is accessible on the internet or captured by the SSCI database. Even though we may capture all citations by some means the number of Asian authors citing other Asian authors is not expected to be high given that the only commonality between these researchers is the fact that they dealt with some aspect of reforms in telecommunication. Given that these researchers also come from a variety of disciplines and sectors, and the fact that search engine devoted to scholarly papers is a new phenomenon, it is not surprising that within Asia citation rate is low.

Emerging Researchers

In October 2006, as part of an effort to locate emerging scholars, i.e. those who have not yet produced research but are in the process or have an interest, we sent out nearly 1500 emails to established researchers or administrators of research programs. We used the database of 700 or more researchers we uncovered from scholar.google⁴, the presenters at the 2006 International Telecommunication Society (ITS) conferences in Beijing and in Europe, respectively, and to heads of departments and directors of research institutes in universities across Asia. In that email we asked the recipients to forward an attached call for applications to young scholars that they feel have the potential to contribute to telecom policy reforms in Asia through their expertise. We received a large number of applications of which 105 applications were selected as representative of emerging researchers with the possibility of contributing to the knowledge base of telecom reform in Asia.

We analyzed the sample of young scholars along the same criteria that we used for established researchers. Since the majority of emerging researchers had no Internet presence of their own, we used the Internet presence of their advisors, and the citations to their Internet presence, to determine the current level of connectivity among emerging researchers.

We found the sample of emerging researchers to as follows:

- 105 persons with origins from 21 Asian countries.
- A high diversity is demonstrated among them in terms of the sector they represented (Academic, 57%; Government, 22%; Industry, 9%; Not-for-profit, 12%)
- A high diversity is demonstrated among them in terms of the disciplines they represent (Communication studies, 40%; Engineering or computer sciences, 20%; Management, 20%; and Other, 20%)
- Less than 50% of the advisors of the emerging researchers demonstrated an internet presence in terms of 'hits' on scholar.google.com
- Only 30% of the advisors had 'hits' that were relevant to telecom reform.

⁴ In addition to the Asia-based scholars detailed in established researcher section above, the google search yielded few scholars from other parts of the developing world and a large group of researchers from the developed world who had written about telecom reform in Asia.

Judging by the composition of established or emerging researchers in telecom reform in Asia, they come from diverse backgrounds. The established researchers are recognized in the form of citations to their work but a very few of the citations are from other researchers with interest in the subject of telecom reform in Asia. These researchers may be parts of other knowledge networks but their participation as a knowledge network for telecom reform in Asia seems to be limited.

Given the composition of the emerging group of researchers they too are unlikely to belong in a knowledge network of telecom reform researcher in Asia.

The telecom policy researchers, or more broadly, communication policy researchers in Asia may not belong to a knowledge network, but does that matter?

Internet Presence v. Knowledge Networks

The absence of a within group knowledge networks would not be a matter for concern CPR_{south} for two reasons. First the objective of CPR_{south} is not to develop researchers for the sake of developing telecom policy research as a field. The objective of CPR_{south} is to develop a community of researchers who can enlighten the policy process or even intervene in the policy process. In an interdisciplinary field such as telecom policy reform where users too come from a diverse group of people such as policymakers, regulators, service providers and consumers, what is important is to enable anybody anywhere to seek out the information they want when they want. In that sense the Internet Presence of all concerned is a necessary condition for making knowledge usable.

In the first instance the researchers in telecom would be able to improve their own work through feedback received from researchers all over the world. They would be able to contextualize their work better through comparisons with other research from Asia. There is also a large body of data that show that research that is available over the Internet receives higher citations than those that are not.

The users too may now be able to retrieve a lot more information using search engines. As they locate information on the Internet the citation counts and comments that accompany would give them additional information to judge.

Once the CPR_{south} community has had the opportunity to know more about each others work, we may or may not see some co-citation knowledge network emerge out of the community.

Internet Presence and New Knowledge Landscape

The focus on the Internet Presence that we advocate here is not new.

The changing nature of the knowledge landscape was noted by Gibbons and others in 1990 in what they termed as the changing modes of knowledge productions. They termed Knowledge produced in formal settings such as universities and research institutes as mode 1 and knowledge produced in work places and other settings as mode 2, and predicted that mode 2 may increasingly become more important than mode 1. Advances in the Internet, in

particular the ability of individuals to initiate and maintain a presence in the Internet through personal Web sites, has meant that mode 2 itself is undergoing transformations with individuals being able to bypass organizations and go on to make an impact. This trend is manifested in the choice of the Time magazine for their Person of the Year award. The magazine made the award to each and every individual who made an impact through their presence on the Internet.

Overall the Internet has changed the landscape more complex by making it possible for all types of players to contribute to the process of connecting knowledge to applications. The answers to complexity too lie with the developments of the internet. There is an emerging body of work that attempts to capture the effectiveness of knowledge institutions through their Web presence. A paper by Katz (2006) titled “Web Indicators for Complex Innovation Systems” and references there in are some examples.

Strategies for enhancing the Internet presence

There are thought to be over 20,000 journals in print and only about 5% of those are open to free access over the Internet. Although 80% or more of those journals would allow authors to self-archive, most authors do not take advantage of the facility (Harnad et al., 2004).

The proposed CPRsouth Web site for self-archiving is an extremely important step in this regard. An interactive Web site that allows for commentary by readers, number of downloads per document etc. will be useful for assessing and improving the quality of the archive.

Sources:

Howard C. Clark (1998). Formal Knowledge Networks – A Study of the Canadian Experience, International Institute for Sustainable Development, 1998

Gibbons and others (1990)

Harnad, S., Brody, T., Vallieres, F., Carr, L., Hitchcock, S., Gingras, Y., Oppenheim, C., Stamerjohanns, H., & Hilf, E. (2004). The Access/Impact Problem and the Green and Gold Roads to Open Access. <http://dx.doi.org/10.1016/j.serrev.2004.09.013> Serials Review 30 (4) 2004

Katz, J Sylvan and Viv Cothey (2006). Web Indicators for Complex Innovation Systems. Research Evaluation, vol. 14, no. 2.

Wagner and Leydesdorff (2005)