

월드와이드웹에 나타난 국제 학술 커뮤니케이션 네트워크에 대한 탐사적 연구  
International Scientific and Scholarly Communication Networks on World Wide Web

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초 록

학문공동체에서 월드와이드웹이 대중화되면서 하이퍼링크를 통한 커뮤니케이션이 새롭게 나타나고 있다. 본 논문은 웹이 (특히 하이퍼링크가) 어떻게 학술 커뮤니케이션 네트워크의 한 형태로 이해될 수 있는지에 대해서 검토한다. 본 연구는 아시아 10개국간 공저자 네트워크와 학술 웹사이트간 하이퍼링크 연결구조를 사회 네트워크 이론과 방법론의 관점에서 살펴 보았다. 국가간 공저자 네트워크와 학술 하이퍼링크 네트워크는 통계적으로 유의미한 상관관계를 보였다. 이것은 웹에 나타난 온라인 학술 커뮤니케이션 관계와 오프라인 공간의 네트워크가 상호관련성이 있다는 것을 제시한다.

ABSTRACTS

A hyperlink on academic World Wide Web has started to be recognized as a form of collaborative communication network connecting individual researchers and research groups and expanding their collaboration relations by making possible easy and direct online contact among people or groups anywhere in the world. This paper describes the structure of academic hyperlinks embedded in universities' Web sites hosted at the 10 Asian countries and further, examines the association between the structure of the hyperlink network and collaborative communication pattern among those countries based on their frequency of co-authoring articles. This research found that the number of inter-hyperlinks among universities' Web sites was significantly correlated with the frequency of co-authored articles across the 10 countries.

키워드: 아시아, 공저자 연결망, 협동연구, 웹마이닝, 사회 네트워크, 하이퍼링크 네트워크, 커뮤니케이션 네트워크, 학술 커뮤니케이션, 웹계량정보학, 인터넷 커뮤니케이션  
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참고문헌

- Arunachalam, S., and M.J. Doss. 2000. "Mapping international collaboration in science in Asia through coauthorship analysis," *Current Science*, 79(5): 621-628.
- Bjorneborn, L., and P. Ingwersen. 2001. "Perspectives of webometrics," *Scientometrics*, 50(1): 65-82.
- Bonacich, P. 1987. "Power and centrality: A family of measures," *American Journal of Sociology*, 92(5): 1170-1182.
- Borgatti, S., M. Everett, & L. Freeman. 1999. "UCINET-X: Network Analysis Software," Columbia, SC: Analytic Technologies.
- Castells, M. 2001. "The Internet galaxy: Reflections on the Internet, business, and society," Oxford: Oxford University Press.
- Chen, C., J. Newman, R. Newman, & R. Rada. 1998. "How did university departments interweave the Web: A study of connectivity and underlying factors," *Interacting With Computers*, 10(4): 353-373.
- Cohen, J. 1996. "Computer mediated communication and publication productivity among faculty," *Internet Research*, 6(2/3): 41-63.
- Cronin, B., H. W. Snyder, H. Rosenbaum, A. Martinson, & E. Callahan. 1998. "Invoked on the Web," *Journal of the American Society for Information Sciences*, 9(14): 1319-1328.
- Freeman, L. C. 1979. "Centrality in social networks: Conceptual clarification," *Social*

Networks, 1: 215-239.

Gabbay, S. 2000. "Connecting minds: Computer-mediated communication in scientific work," *Journal of American Society for Information Science*, 51(14): 1295-1305.

Galaskiewicz, J., and S. Wasserman. 1993. "Social network analysis: Concepts, methodology, and directions for the 1990s," *Sociological Methods & Research*, 22(1): 3-22.

Genuth, J., I. Chompalov, and W. Shrum. 2000. "How experiments begin: The formation of scientific collaborations," *Minerva*, 38: 311-348.

Haythornthwaite, C. and B. Wellman. 1998. "Work, friendship and media use for information exchange in a networked organization," *Journal of the American Society for Information Science*, 46(12): 1101-1114.

Hine, C. 2000. "Virtual ethnography," London: Sage.

Katz, J. S. and B. R. Martin. 1997. "What is research collaboration?," *Research Policy*, 26: 1-18.

Kim, H. J. 2000. "Motivations for hyper-linking in scholarly electronic articles: A qualitative study," *Journal of the American Society for Information Sciences*, 51(10): 887- 899.

Kling, R., G. McKim, and A. King. 2001. "A bit more to IT: Scholarly communication forums as socio-technical interaction networks," Unpublished manuscript. Retrieved August 14, 2002 from the World Wide Web:

<http://www.slis.indiana.edu/csi/Wp/wp01-02B.html>

Koku, E., N. Nazer, and B. Wellman, B. 2001. "Netting scholars: Online and offline," *American Behavioral Scientist*, 44(10): 1752-1774.

McCain, K. W. 2000. "Sharing digitized research-related information on the World Wide Web," *Journal of American Society of Information Science*, 51(14): 1321-1327.

Monge, P., and N. S. Contractor. 2000. "Emergence of communication networks," In Jablin, F. M., and L. L. Putnam. (Eds.), *The new handbook of organizational communication: advances in theory, research, and methods*(pp. 440-502). Thousand Oaks, CA: Sage.

Nerdi. 2002. "Knowledge production in the new digital networks," NIWI-KNAW: Amsterdam. Retrieved June 10, 2002 from the World Wide Web:

<http://www.niwi.knaw.nl/nerdi/>

Newman, M. E. J. 2000. "The structure of scientific collaboration networks," *Proceedings of the National Academy of Sciences*, 98(2): 404-409. Retrieved February 8, 2002 from the World Wide Web:

<http://www.pnas.org/cgi/content/full/98/2/404>

Park, H. W. 2002. "Examining the determinants of who is hyperlinked to whom: A survey of webmasters in Korea," *First Monday*, 7(11). Retrieved February 8, 2002 from the World Wide Web:

<http://www.firstmonday.org>

Park, H. W., G. A. Barnett, and I. Y. Nam. 2002a. "Hyperlink-Affiliation network structure of top websites: Examining affiliates with hyper-link in Korea," *Journal of the American Society for Information Science and Technology*, 53(7): 592-601.

Park, H. W., G. A. Barnett, and I. Y. Nam. 2002b. "Interorganizational hyperlink networks among web-sites in South Korea," *NETCOM: Network and Communication Studies*, 16(3/4): 155-173.

Perry, C. A., and R. E. Rice. 1998. "Scholarly communication in developmental dyslexia: Influence of network structure on change in a hybrid problem area," *Journal of American Society for Information Science*, 49(2): 151-168.

Richards, W. D. Jr., and G. A. Barnett. (Eds.). 1993. "Progress in communication science," 12. Norwood, NJ: Ablex.

Rogers, E. M. 1987. "Progress, problems and prospects for network research: Investigating relationships in the age of electronic communication technologies," *Social Networks*, 9: 285-310.

Rousseau, R. 1997. "Citations: an exploratory study," *Cybermetrics*, 1. Retrieved January 3, 2003 from the World Wide Web:

<http://www.cindoc.csic.es/cybermetrics/articles/v1i1p1.html>

- Scott, J. 1991. "Social Network analysis: A handbook," CA: Sage Publications.
- Theilwall, M. 2001. "Commercial web site links," Internet Research: Electronic Networking Applications and Policy, 11(2): 114-124.
- Thewall, M., and A. Smith. 2002. "A study of the interlinking between Asia-Pacific university Web sites," Scientometrics, 55(3): 335-348.
- Tomlinson, M. 2002. "The Academic Robotics Community in the UK: Web based data construction and analysis of a distributed community of practice," The DRUID Working Paper. Retrieved June 10, 2002 from the World Wide Web  
[http://www.druid.dk/wp/pdf\\_files/02-07.pdf](http://www.druid.dk/wp/pdf_files/02-07.pdf)
- Walsh, J. P., and N. G. Maloney. 2002. "Computer network use, collaboration structures and productivity," In Hinds, P., and S. Kiesler. (Eds.), Distributed work. Cambridge (pp. 433-458). Cambridge, MA: MIT Press. Retrieved June 10, 2002 from the World Wide Web:  
<http://tigger.uic.edu/~jwalsh/Collab.html>
- Walsh, J. P., S. Kucker, N. G. Maloney, and S. Gabbay. 2000. "Connecting minds: Computer-mediated communication and scientific work," Journal of the American Society for Information Science, 51(14): 1295-1305.
- Wasserman, S., and K. Faust. 1994. "Social network analysis: Methods and applications," Cambridge, NY: Cambridge University Press.
- Wellman, B. 2001. "Computer networks as social networks," Science, 293(14): 2031-2034.

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