EMERGENCE, EVOLUTION, AND
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INTERORGANIZATIONAL
COMPUTER-MEDIATED
COMMUNICATION NETWORKS: A
STUDY OF THE HYPERLINK
NETWORKS AMONG
ENVIRONMENTAL NON-
GOVERNMENTAL
ORGANIZATIONS IN THE UNITED
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Emergence, Evolution, and Effectiveness of Interorganizational Computer-mediated Communication Networks: A Study of the Hyperlink Networks among Environmental Non-governmental Organizations in the United States and China

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ABSTRACT

Hyperlink networks, as a form of computer-mediated communication (CMC) network, refer specifically to the information flow among web pages. This dissertation focuses on hyperlink networks among organizational websites and aims to answer the following three research questions. (1) What factors affect the emergence of hyperlink networks? (2) How do hyperlink networks evolve over time? (3) How effective are hyperlink networks?

Based on the taxonomy of four types of communication networks indicated by Shumate and Contractor (2013), hyperlinks are defined in this dissertation as representational relationships that exhibit pre-existing relationships with hyperlink-receiving organizations and motivate the positive impression of the public toward hyperlink-sending organizations. Seven propositions were formulated. The first proposition is on the content of hyperlinks and argues that hyperlinks are extensions of pre-existing interorganizational relationships (IORs). The second proposition is on the strength of hyperlinks and argues that hyperlinks are symbols of strong ties. The third proposition is on the direction of hyperlinks and argues that hyperlinks have a more vertical rather than horizontal direction. The fourth and fifth propositions are on the relational and structural changes of the hyperlink networks over time. The sixth and seventh propositions are on the perceived and substantial effectiveness of hyperlink networks.

The empirical settings for this dissertation are the hyperlink networks among environmental non-governmental organizations (ENGOs) in the U.S. and China. Two samples were collected from 2011 to 2013. The first sample comprises 48 ENGOs
located in the Chicago metropolitan area. An online survey was conducted from December 2012 to March 2013. This survey yielded an interorganizational network involving 488 organizations. Data on the hyperlink networks among the 488 organizations were collected in March 2013. The focal organizations in the second sample are composed of 40 ENGOs in China. In 2011 and 2013, respectively, the websites of 40 ENGOs were used as seed sites to explore hyperlink networks among the 40 ENGOs and their partners. The two-wave hyperlink networks among 224 organizations that were present in the 2011 and 2013 datasets became the objects of analysis.

In examining the emergence of hyperlink networks, results show that personal ties best predict the presence of hyperlinks. Hyperlinks are symbols of strong ties between the hyperlink-sending organization and its partners. Regarding the evolution of hyperlink networks, hyperlinks evidently change as IORs change. Organizations select hyperlinks as extensions of pre-existing IORs that bring maximum benefits and minimal harm. Thus, hyperlinks are a potentially valid unobtrusive measure for IORs. Regarding effectiveness, hyperlinks can be an indicator of perceived performance of an organization but may not necessarily bring any substantial outcomes.

This dissertation presents a theoretical, methodological, empirical, and practical contribution to the study of hyperlink networks in an interorganizational context. The theoretical contribution of this dissertation is threefold. First, a contextual typology that sheds light on the inconsistent perception of scholars toward situational opportunities and constraints affecting the occurrence and meaning of hyperlink networks is offered. Second, rooted in a social constructionist epistemology, this dissertation challenges
technology determinism that has been dominating Internet research ideology by showing both the meanings of and outcomes involving technology shaped by social contexts. Third, as a response to the call of Shumate et al. (2013) for more explorations on representational networks, this dissertation attempts to deepen the understanding on the emergence, evolution, and effectiveness of hyperlink networks. Furthermore, the analysis conducted in this dissertation on the multiplex networks across relation types has yielded broad insights on the relationships between representational networks and other types of communication networks.

The methodological contribution of this dissertation is twofold. First, this dissertation contributes to a deeper understanding on the evolution processes of hyperlink networks, which “organizational communication scholars have generally not attempted to study” because of “methodological determinism, the inaccessibility of process techniques, and the perceived scope of effort required from the researcher” (Monge et al., 1984, pp. 24–28). Second, this dissertation involves both obtrusive (surveys) and unobtrusive (web mining) measures. The empirical contribution of this dissertation is the proof of the informal nature of hyperlink networks by showing that they are mainly extensions of friendship networks among the president/director-level staff members of the hyperlinked organizations, instead of extensions of formal relationships such as material assistance and sharing of human resources. The practical contribution of this dissertation is the application of its findings in mapping, monitoring, and assessing interorganizational networks and organizational performance.