

資訊科技對協同合作網絡的學術生產力 影響：弱連帶優勢？強連帶優勢？

黃心怡

喬治亞理工學院公共政策學院

hhuang30@gatech.edu

摘要

資訊科技革命除了改變全球生產方式與經濟運作模式外，也讓學術研究與科學技術發展產生了變化，學術專業分工愈趨細緻的現象，讓跨學門協同合作的研究越來越普遍。本研究主要觀察資訊科技所帶來的便利溝通環境與其團隊導向的互動模式會對新型態的研究模式有何影響？本研究採問卷調查與自我中心網絡分析法，以我國「IPv6 建置發展計畫」之團隊為樣本，針對社會網絡關係、訊息流動、與合作後之學術生產力進行個案分析。同時，本研究蒐集參與該合作計畫之成員們過去一年內的學術著作，繪出與其他合作成員共同合寫期刊文章之網絡矩陣，分析協同合作所能來的實際效益。

結果顯示，CMC 與電話皆很常被用來進行合作時的溝通，但未能增加合作網絡的異質性，互動對象的選擇仍侷限於既有的機構界線，但 CMC 的使用能增加弱連帶比例、對學術產出有正向影響。長遠來看，CMC 所產生的弱連帶或許會是未來合作的可能性，但並沒有改變人們交換資訊的習慣，強連帶關係仍是 IPv6 計畫成員決定是否進行訊息傳遞的決定因素；此外，在本協同合作的團隊中，訊息的交流重量不重質，不論何種類型的訊息，交換的頻率越多才會對個人的學術生產力有正向影響。結果反映出，國內學者在合作的過程中，強連帶較多的網絡，才利於傳遞資訊與獲得個人學術的產出。

關鍵詞：協同合作研究、社會網絡理論、電腦中介溝通、學術生產力

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The Effects of a Change in Technology on Social Network Structure and Scientific Performance

Hsin-I Huang

School of Public Policy, Georgia Institute of technology

Abstract

Scientific researches are becoming more cross-disciplined and collaborative. The first objective of this study is to explore a government-lead, technical steering committee—the IPv6 research collaboration team, and its collaborative pattern of research alliances as well as the role of ICTs plays in the collaboration. Does the use of CMC enhance collaboration transform team network structure, and thus facilitate academic productivity?

We conducted a web-based survey to answer our research questions and used citation analysis to draw the network of co-author publication in IPv6 team. The results show that strong ties play very significant roles in facilitating all routine, professional, and private life information exchanges within the network. Only team members who come from the same institution and with strong ties can we expect higher level of exchanging information regarding to their professional works other than the IPv6 project. Those who exchange information heavily show a high academic productivity. The regressions indicate impact of strong tie on academic productivity is through members' active interaction and heavy information exchanges. In all, our results demonstrate the use of CMC and the bonding effect of social network enhance academic productivity. The findings support the dense network and strong tie hypotheses, furthermore, the mechanisms of network bonding effect on high academic productivity are clarified.

Keywords: Research collaboration, Social network, CMC, Scientific productivity