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Bridging Structural Holes and Islands: A Scientometric Approach to Mapping Innovation in Social Science Methodology

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This study investigates the role of structural holes and islands in the dynamics of scientific knowledge production within social science methodology. Structural holes are conceptualized as gaps in knowledge due to fragmented connections between thematic groups, while islands represent cohesive clusters of specialized knowledge. Employing a bibliometric and scientometric approach, we analyze co-occurrence networks derived from publications to map dominant themes and identify broker-nodes that bridge isolated knowledge clusters. These brokerage nodes are hypothesized to facilitate interdisciplinary connections and foster the emergence of innovative scientific themes. Using a modified version of Cobo's Strategic Diagram, informed by network topology metrics such as clustering and closeness centrality, we demonstrate that bridging structural holes enables the discovery of latent concepts and the evolution of scientific fields. Our method highlights traditional, innovative, and potentially innovative themes, offering a complementary tool to existing bibliometric analyses. While applied here to social science methodology, this approach holds promise for broader disciplinary applications in understanding and fostering knowledge development.

Keywords/Topics

Cobo's Diagram; Co-occurrence network; Island algorithm

Primary author(s) : GIORDANO, Giuseppe (University of Salerno); CATONE, Maria Carmela (University of Salerno)

Presenter(s) : CATONE, Maria Carmela (University of Salerno)

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