

Abstract

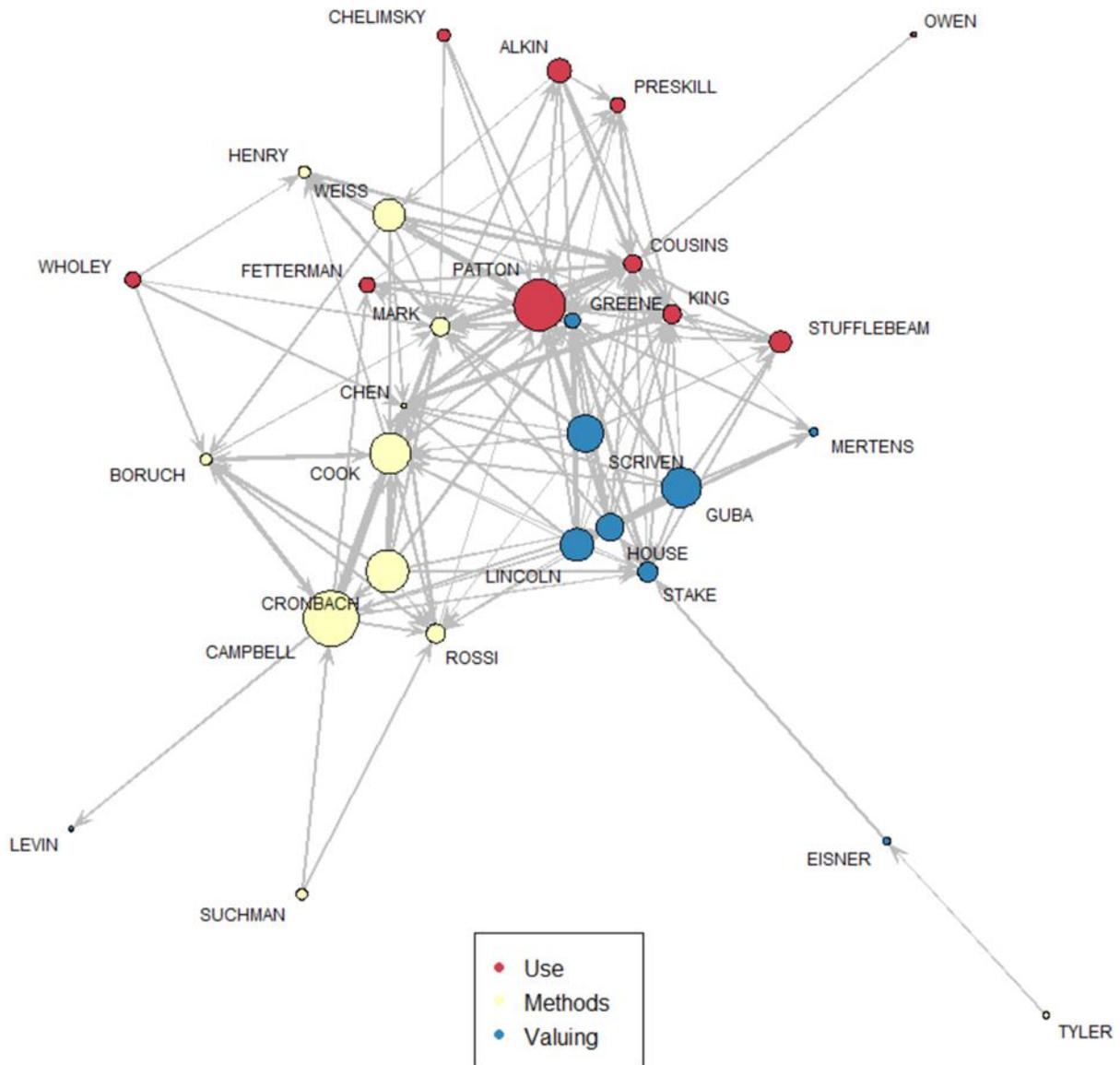
This study examines the contemporary network structures of program evaluation theorists, exploring the history and future trends of the field of evaluation theory. The sample network includes 30 evaluation theorists; these theorists are selected from the two editions of *Evaluation Roots* (Alkin, 2004; Alkin, 2012), where the theorists are classified into three theory branches: Use, Methods and Valuing. In this study, we obtained the data from the Web of Science database, and constructed the network edgelist based on the theorists' inner circle citation frequency. We created a directed network, and performed analyses to assess 1) its alignment with the current three-branch structure, 2) the centrality of the network and important nodes, 3) the goodness-of-fit indexes with the given structure, and 4) the comparisons with other latent space models. The analysis confirmed that the three-branch structure is a good representation of the theorists, well-aligned with anecdotal evidence from the literature.

Summary

In the *Evaluation Roots: Tracing Theorists' Views and Influence*, the Evaluation Tree to present the "relationships between evaluation theorists" and how evaluation "theories built upon other theories" (Alkin, 2004, p. ix). The contemporary theorists were classified on the branches, and their placement on the tree informed readers about their similarities and differences in evaluation perspectives. Although the classification is widely accepted, the supporting evidence are largely anecdotal. The connections of theorists and theories have been identified, but not quantified. Although in the two editions of *Evaluation Roots*, evolving of theories have been recognized, the merging patterns are not fully presented, and the theorists' temporal-spatial connections have been rarely discussed. A network analysis of the evaluation tree is in need as a component for the post-second edition.

To portray the temporal-spatial trajectory of research in evaluation theory, the first step is to explore if the current branch structure hold in general. Accordingly, this study proposed to perform social network analysis to explore the interconnections among evaluation theorists. We used two editions of *Evaluation Roots* to select the influential theorists. The criterion was to select all the evaluators whose evaluation theories were discussed in one full chapter in any of the edition. We identified 30 theorists, and used their in-network citation frequency to represent their interconnections.

We collected data from the Web of Science (1900 - 2018), and focused on citation frequency within the tree network (30 nodes). We started from name and keywords searching of the 30 theorists, and then limited the citations within the network and obtain 589 data points. We started to test the network structure, and eventually, as a pilot study, we defined that if a theorist was cited by another theorist at least 5 times (≥ 5), this theorist formed a "frequent citation" relation with the other theorist who cited his/her work, i.e., this theorist has an outgoing tie pointing at the other theorist. With the consideration of citation frequency, we used 153 data points. With the collected data, we created a directed network with 30 vertices, 153 edges, and defined the branch that the theorists belonged to as a vertex attribute.



We intentionally plotted the node colors by their branches. From the colors, we observed that theorists within the same branch tend to cluster and share more citations. To explore the centrality and connectivity, we assessed the network density, degrees, betweenness, closeness, and eigenvalue centrality. This process helps us identify important theorists who serve the roles of “connecting” other theorists, such as Campbell, Cousins, Patton, Guba and Scriven. To test if the three-branch structure would be more reasonable than a simple random structure, we used the Monte Carlo approximation and that led to the conclusion that the three-branch structure is a good representation of the relationships among the theorists. The goodness-of-fit indexes indicate that classification of Use, Methods and Valuing is significant. The latent space modeling comparisons supported that a 3-dimensional clustered latent social space model fitted the best, and this supported the current three-branch structure.