Power, Brokers, and Agendas: New Directions for the Use of Social Network Analysis in Education Policy

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Abstract: In this special issue, *Researching 21st Century Education Policy Through Social Network Analysis*, authors use social network analysis (SNA) to explore policy networks, broaden the current literature of sociological approaches to SNA, and/or incorporate new lenses for interpreting policy networks from political science or other academic disciplines. This editorial introduction first provides an

overview of policy networks and their relevance in education. Then, the editors describe existing work applying the tools of SNA to education policy and highlight understudied areas before describing the articles included in this issue. These articles apply SNA to a variety of education policy issues, including large scale policies such as the Every Student Succeeds Act and the Common Core State Standards, charter schools, and the relationship between system and non-system actors. Articles highlight multiple applications of SNA, including how SNA can be used to advance theory, as well as describe and predict policy networks.

Keywords: social network analysis; policy networks; education policy; organizations

Poder, *brokers* y agendas: Nuevas direcciones para el uso del análisis de redes sociales en la política educativa

Resumen: En este número especial, Investigando la Política Educativa del Siglo XXI a través del Análisis de Redes Sociales, los autores utilizan el análisis de redes sociales (SNA) para explorar redes de políticas, ampliar la literatura actual sobre enfoques sociológicos del SNA y / o incorporar nuevas lentes para interpretar las redes de políticas. de la ciencia política u otras disciplinas académicas. Esta introducción editorial proporciona en primer lugar una descripción general de las redes de políticas y su relevancia en la educación. Luego, los editores describen el trabajo existente aplicando las herramientas del SNA a la política educativa y resaltan áreas poco estudiadas antes de describir los artículos incluidos en este número. Estos artículos aplican el SNA a una variedad de cuestiones de política educativa, incluidas políticas a gran escala como la *Every Student Succeeds Act* and the *Common Core State Standards*, las escuelas autónomas y la relación entre los actores del sistema y los que no pertenecen al sistema. Los artículos destacan múltiples aplicaciones del SNA, incluida la forma en que el SNA se puede utilizar para promover la teoría, así como para describir y predecir redes de políticas.

Palabras-clave: análisis de redes sociales; redes de políticas; política educativa; organizaciones

Poder, *brokers* e agendas: Novas direções para o uso da análise de redes sociais na política educacional

Resumo: Nesta dossiê, Pesquisando Políticas Educacionais do Século 21 através da Análise de Redes Sociais, os autores usam a análise de redes sociais (SNA) para explorar as redes de políticas, ampliar a literatura atual de abordagens sociológicas para SNA e / ou incorporar novas lentes para interpretar as redes de políticas de ciências políticas ou outras disciplinas acadêmicas. Esta introdução editorial fornece primeiro uma visão geral das redes de políticas e sua relevância na educação. Em seguida, os editores descrevem o trabalho existente aplicando as ferramentas do SNA à política educacional e destacam áreas pouco estudadas antes de descrever os artigos incluídos neste número. Esses artigos aplicam SNA a uma variedade de questões de política educacional, incluindo políticas de grande escala, como a *Every Student Succeeds Act* and the *Common Core State Standards*, escolas licenciadas e a relação entre atores do sistema e não-sistema. Os artigos destacam várias aplicações do SNA, incluindo como o SNA pode ser usado para avançar a teoria, bem como descrever e prever redes de políticas.

Palavras-chave: análise de redes sociais; redes de políticas; política educacional; organizações

Policy Networks and Networked Governance

Over the last several decades, public policy has increasingly involved a complex web of actors. What used to be a government-led effort to legislating and implementing policy has now become an expanded enterprise composed of a nebulous array of individuals, non-system actors, non-governmental organizations, philanthropies, and corporations (Bevir & Richards, 2009; Castells, 1996; Eggers & Goldsmith, 2003). In addition to increased recognition of this "networked governance" perspective as part of policy making and implementation, COVID-19's recent disruption to numerous social sectors and the response that followed has brought to the forefront the importance of network approaches for effectively addressing national crises. Emerging networks to secure personal protective equipment, adequately implement national testing, and facilitate supply chains are of critical importance (Ivanov, 2020; Kavi, 2020; Reuters, 2020). Further, repeated calls to dismantle systems of racial inequality and oppression have given rise to networks using resources and expertise to support communities and organizations of color (Abolitionist Teaching Network, 2020; Black Lives Matter, 2020; Education for Liberation Network, 2020).

The concept of policy networks developed in the social sciences in the 1970s and 1980s as a response to a growing number of actors influencing the public policy-making process (Kenis & Schneider, 1991). Policy networks "consist of governmental and societal actors whose interactions with one another give rise to policies" (Bevir & Richards, 2009). In recent decades, collaborative policy networks have become an increasingly important means of service provision and governance (Agranoff & McGuire, 1999; DeLeon & Varda, 2009; O'Toole, 1997). Such networks are constituted by relationships among public agencies, advocacy groups, nonprofits, and for-profit firms that are active within a particular policy area and at times engage in joint projects to achieve shared goals (DeLeon & Varda, 2009; Hatmaker & Rethemeyer, 2008). Policy networks are particularly likely to arise in situations in which problems are characterized as "wicked", when there are multiple stakeholders and organizations acting alone cannot adequately achieve their goals (DeLeon & Varda, 2009; O'Toole, 1997). Given their increasing importance to governance and policy outcomes, researchers have sought to understand the ways in which policy networks form, evolve, and dissolve, and how policy networks serve political ends and influence the policy process.

Research on policy networks is based on a tradition in political science that focuses on the actors who participate in policy decision-making. This stream of work originated in the 1960s and was adopted in British research on policy communities and networks in the 1980s and 1990s (Marsh, 1998; Marsh & Rhodes, 1992; Rhodes, 1990). The American and European literature on policy networks differ in topic and methodology: traditionally, researchers in Great Britain and Europe conducted policy group studies (Marsh & Rhodes, 1992; Richardson & Jordan, 1979), while U.S. researchers have relied on quantitative methods or social network analysis (SNA) to study policy formation and diffusion (Freeman & Stevens, 1987; Laumann, Knoke, & Kim, 1985). These traditions have few links, and authors subscribing to one do not generally reference the work of those subscribing to the other (Marcussen & Olsen, 2007). While SNA has been an increasingly popular set of tools applied across many disciplines, in education, researchers have generally used SNA from a sociological perspective rather than a political science lens. Similarly, others have conducted research on policy networks in education, but not often with the tools of SNA. In this special issue, authors were asked to use SNA to explore policy networks, broaden the current literature of sociological approaches to SNA, and/or incorporate new lenses for interpreting policy networks from political science or other academic disciplines.

Policy Networks and Social Network Analysis in Educational Research

In educational research, policy network theories have most extensively been applied by Stephen Ball, who has examined how philanthropic and business interests converged around the narrative that education is in need of reform and that a wide array of organizational actors outside the traditional system actors at the federal, state, and district level must be engaged to provide those solutions. Ball and colleagues investigate the organizational actors connected to initiatives like low-cost private schools and digital curriculum materials across the globe (e.g., Ball & Junemann, 2012). Ball most often uses "network ethnography", an approach combining information from internet searches with policy actor interviews in order to illuminate ties between organizations based on shared funding, policy positions, flow of information, etc. (Ball, 2016; Ball et al., 2017). These relationships are often visualized in a sociogram or similar type of diagram. Similarly, Au and Ferrare's (2015) edited volume provides a number of examples of the connections between organizations involved in global neoliberal reform.

Other studies of policy networks in the US have focused on creating typologies of the intermediary organizations involved in advocacy and communication of educational research (Scott et al., 2014), conceptual frameworks for how philanthropies interact with various intermediary organizations (Scott & Jabbar, 2014), and how networks of intermediary organizations coalesce to advocate for particular policy positions (Lubienski, 2018). These studies have illuminated relationships between various organizations and the policy process, but they have not often used the tools of SNA to directly examine organizational networks influencing policy.

Many of the education studies using SNA have asked sociologically oriented questions, usually centered around exploring social capital and its ties to social networks. Prior studies have applied SNA to examine the role of social capital and interpersonal relationships in educational reform (e.g., Coburn & Russell, 2008; Daly & Finnigan, 2010, 2011; Finnigan et al., 2013; Liou, 2016; Moolenaar et al., 2010). These studies, and many others, have provided critical insight into the role of advice-seeking, social capital, and trust within schools and districts, and how actors within given organizational contexts facilitate the enactment of specific reforms through network connections or positions. Understanding how actors interact with one another, and how actors engage in a variety of activities over policy aims and measures, occurs in the context of institutional or collective arrangements in which the policy process unfolds (e.g., Howlett et al., 2017). However, key questions remain for understanding the role and impact of policy networks in educational systems, and how actors within these networks leverage expertise and resources to influence policy outcomes.

SNA is a powerful tool that allows researchers to visualize, for example, coalitions of organizations involved in advocating for particular policies (e.g., Au & Ferrare, 2014), organizations with shared positions on policy, and the attributes that predict shared policy positions. Further, using SNA to study policy networks illuminates the relationship between policy and politics, or "contestation over values, ideas, ideological, and material interests" (Saltman, 2014) that manifests in public policy. SNA offers one approach for understanding the politics and power relationships embedded within policy networks because it provides a way of visualizing networks of influence and power across organizations. SNA allows one to understand social relations and how embedded actors influence an overall network, dissemination of information, and policy. As education researchers have expanded their understanding of school and schooling, so too has their focus shifted to a deeper conceptualization of organizational (and personal) relationships that impact educational outcomes (Daly, 2010). Governance and networks have become buzzwords in policy analysis that have been incorporated in educational research to reflect contemporary changes in

politics and the state. Identifying the key actors in policy networks, how they are formed, interaction within and between networks, and the impact of those interactions on policy, have influenced education policy research in recent years (Daly, 2010; Howlett et al., 2017; Lubienski, 2019; Schuster et al., 2019).

SNA has been used to describe relationships between organizations, whether foundations, state education agencies, intermediary organizations, or various not-for-profit and for-profit entities, providing powerful illustrations of policy networks. Over the last 10 years, groundbreaking work in educational research used SNA to make the convergence in philanthropic giving explicit, both in terms of specific organizations supported and foundations' similar priorities for market-based educational reforms (Reckhow, 2013; Reckhow & Snyder, 2014) and the funding networks of alternative teacher certification and charter schools (Au & Ferrare, 2014; Ferrare & Reynolds, 2016; Kretchmar et al., 2014). Others have demonstrated how states responded to the federal incentives of the Race to the Top competition by assembling complex interorganizational networks (Russell et al., 2015). Descriptive studies are useful for highlighting the importance of networks in designing and implementing policies, while also providing insight on how these networks are formed and used. For example, Au and Ferrare (2014) used SNA to identify the individuals and organizations involved in funding charter school legislation in Washington state. Hodge, Salloum, and Benko (2016) visualized the connections between state-provided curricular resources and their organizational sponsors to understand the organizations influencing the implementation of the Common Core State Standards (CCSS). Miskel and Song's work provided a pioneering use of SNA in literacy research to visualize coalitions influencing literacy policy at the federal level (Miskel & Song, 2004) and state level (Song & Miskel, 2005, 2007). More recent network-focused literacy research examined the collective capacity of external providers' reading programs in New York City (Hatch et al., 2019) and the similarities and differences in organizations' messages about literacy instruction (Hodge et al., 2020).

SNA studies combining description and prediction are becoming more common in education, often utilizing new tools and software for SNA. For example, the Discourse Network Analyzer (Leifeld, 2013) is a tool developed by a political scientist that allows text to be coded for particular ideas and the individual/organization putting forward that idea, and then exported to social network software. A recent set of studies applied this tool to congressional hearings to identify actors with shared policy preferences on teacher quality and to identify predictors of shared policy preferences (e.g., Galey-Horn et al., 2019; Reckow & Tompkins-Stange, 2018). Predictive analysis is useful for forecasting how information will spread within a network, the environments for networks to emerge, and the influence of social capital (Fernandes et al., 2019; Williamson, 2016). Studies that have used educational data mining techniques to predict network outcomes provide an understanding of the strength of ties and density of policy networks (Regan & Khwaja, 2019). Other studies draw on large scale social media data to describe and predict discourse about education policy, including opt-outs (Paquin Morel, 2019), the CCSS (Supovitz et al., 2017; Wang & Fikis, 2017), and the Every Student Succeeds Act (ESSA; Curran & Kellogg, 2017). Because of the potential for SNA as a tool for understanding and predicting policy networks, this special issue provided an outlet for scholars engaged in the next generation of studies using SNA in innovative ways to describe and predict a variety of policies across problem definition, formation, and implementation.

Structure of the Special Issue

In this special issue, we feature manuscripts applying the tools of SNA to policy networks involved in a variety of education policy issues in the current political climate. Some are related to

large scale policies, such as ESSA implementation (Wang) or the Common Core State Standards (CCSS). Two papers examine how the combination of the CCSS and Race to the Top influenced educational policy—one identifies state attributes associated with states endorsing curricular and instructional resources from particular organizations (Salloum, Hodge, and Benko), and the other examines social movements around opting out of large-scale assessments linked to the CCSS (Green Saraisky and Pizmony-Levy). Two papers examine aspects related to charter schools. Castillo identifies the strategies progressive charter schools use to fund themselves, while David and colleagues identify the clusters of STEM coursework offered in charter schools in Texas, asking about students' opportunity to learn in charter vs. non-charter public schools. Regardless of topic, many of these papers ask about the relationship between system and non-system actors, consistent with the networked governance perspective of many policy network studies. Haddad asks about foundation funding for higher education, identifying foundations' priorities through a set of interviews and looking at the role of intermediary organizations in coordinating reform priorities. Oliveira and Daroit's paper on the Bolsa Família program in Brazil theorizes about the relationship between system and non-system actors when families can only receive funds from this social services program when children attend school regularly.

These articles are grouped by their theoretical and methodological contribution, and we provide an overview of each below. We begin with an article from Sarah Galey-Horn and Joseph Ferrare outlining a set of related theories for understanding policy change as related to social network concepts. We then move into network studies that take a descriptive approach and end with those combining both descriptive and predictive approaches.

Galey-Horn and Ferrare's theoretical contribution, "Using Policy Network Analysis to Understand Ideological Convergence and Change in Educational Subsystems," anchors the special issue. The manuscript outlines a more refined and specific approach to policy network analysis in education, focused in particular on a unified, explanatory framework for understanding the role of ideas and beliefs in policy change and formation. Galey-Horn and Ferrare describe three theoretical frameworks useful for a network approach to studying policy change: Advocacy Coalition Framework, Discourse Network Analysis, and Argumentation Discourse Analysis Approach. Each offers a distinct contribution to understanding how particular education policies become prominent on the policy agenda. Advocacy Coalition Framework proposes a three-layer hierarchical belief system undergirding policy change: coalitions emerge around particular sets of specific policy preferences when policy actors have shared, "deep core beliefs" in values like efficiency or choice, and shared viewpoints on how those core beliefs should be enacted in policy. Discourse Network Analysis provides a way of making the implicit beliefs from advocacy coalition framework explicit, coding texts such as articles, testimony, mission statements, websites, etc. for evidence of policy preferences and their corresponding policy core beliefs and deep core beliefs. Then, the ties between actors and various policy preferences can be placed in a matrix for visualization and analysis using SNA. The final theoretical perspective, Argumentation Discourse Analysis Approach, emphasizes "storylines" or "policy narratives," viewing coalitions as formed not only of people with shared beliefs and policy preferences, but shared stories about policy problems and solutions. Then, Galey and Farrare offer examples of how these complementary frameworks can be combined to understand market-based policy changes, using the cases of foundations' shared funding priorities around alternative certification programs and charter schools; intermediary organizations' use of research to promote urban charter schools; and policy entrepreneurs arguing for how the CCSS would promote greater efficiency in education.

Further illustrating some of these ideas, Yinying Wang's manuscript, "Understanding Congressional Coalitions: A Discourse Network Analysis of Congressional Hearings for the Every

Student Succeeds Act," uses Advocacy Coalition Framework and Discourse Network Analysis to understand the coalitions active in ESSA implementation. Wang coded testimony from hearings on ESSA implementation between 2016 and 2018, recording the policy actor providing testimony, their organizational affiliation, and the claims the policy actors made about ESSA implementation. Wang finds that eight categories of actors provided testimony, including those from the federal and state levels, teachers' unions, interest groups, district leaders, and teachers. Qualitative coding of policy claims suggested four overall coalitions around the issues of equity, assessment and accountability, how states have responded to ESSA in their legislation, and the inconsistent state approvals from the U.S. Department of Education.

As described above, one line of policy network research has been spearheaded by Stephen Ball, who combines a networked governance perspective with an approach similar to SNA that he calls network ethnography. Ball's work has been particularly influential in Brazil (Mainardes & Gandin, 2013), and Breynner Ricardo Oliveira and Doriana Daroit's article, "Public Policy Networks and the Implementation of the Bolsa-Família Program: An Analysis Based on the Monitoring of School Attendance" takes a similar approach to understanding how local actors make sense of a Brazilian welfare program, the "Bolsa Família Program." Oliveira and Daroit interviewed individuals at various levels of the program's administration, from those involved at the federal level in the program's strategic direction, to those at the local level in both schools and social services. The funds that families receive are conditional, based on students meeting school attendance benchmarks, and the authors identify a complex interorganizational network and routines developed across governance levels to monitor attendance.

Elise Castillo's piece, "Doing What It Takes to Keep the School Open": The Philanthropic Networks of Progressive Charter Schools" examines the strategies that leaders of progressive charter schools use to secure financial support. These schools often deliberately set their pedagogical approaches in contrast to those used in no-excuses Charter Management Organizations (CMOs). However, Castillo finds that these schools had to draw from the playbook of larger, market-based charter networks to secure their financial health—recruiting wealthy board members with deep-pocketed social networks, drawing on the social networks of parents, teachers, and leaders for financial support, and accepting some foundation funding. While Castillo does not use a formal SNA approach, her work is similarly grounded in policy networks (Ball, 2008), identifying the connections between philanthropy, think-tanks, and business as critical to the growth of many charter schools and networks. However, despite growing criticism of some CMOs and a policy window opening for charters taking more progressive pedagogical approaches, little was known before this study about how these schools sought out primary resources to establish themselves and transactional resources to maintain their existence (Rowan, 2002). Castillo's work demonstrates how these schools' financial health rests upon the social capital of those affiliated with the school and school personnel's ability to leverage those connections into concrete financial resources.

Nabih Haddad extends earlier findings about the role of foundation funding in K–12 (e.g., Reckhow, 2013; Reckhow & Snyder, 2014) to higher education in "Foundation-sponsored Networks: Brokerage Roles of Higher Education Intermediary Organizations." Haddad identifies funding networks through a combination of interviews with foundation officials and grant recipients, as well as SNA of prominent higher education funders. Haddad also points out, as have Scott and Jabbar (2014) and others, that foundations do not simply disburse money to grantees to disseminate reform ideas and priorities. Instead, they coordinate with intermediary organizations to broker knowledge about reforms. Indeed, Haddad finds that higher education funders convene organizational networks to support their priorities and that foundations prioritize funding those whom they know will be able to broker ideas and relationships across multiple sectors, like

membership organizations, advocacy organizations, and system actors like statewide higher education systems who are broadly connected in higher education.

Moving from description to prediction, Bernard David, Michael Marder, Jill Marshall, and María González-Howard's piece, "How Do Students Experience Choice? Exploring STEM Course-offerings and Course-taking Patterns in Texas Charter and Non-charter Public Schools" investigates charter schools and STEM course-taking. The authors point out that a frequent rationale for charter schools is that the more flexible governance format could allow for innovation in curriculum and instruction. Assuming that broadened STEM course-taking is a desirable outcome, the authors use SNA to analyze state administrative data on student course-taking to investigate whether students are taking more STEM courses in charter schools than in non-charter public schools. David and colleagues' paper represents how SNA, as a tool to represent relationships, can be used flexibly. The authors construct several two-mode networks that they convert into one-mode networks for analysis, as well as a community detection algorithm and multiple quantitative models, to identify whether charters in Texas are offering (and students are taking) different STEM coursework than non-charters. The authors find that charters are less likely to offer STEM classes earmarked for students receiving special education services or to offer intermediate-level courses they call "college preparatory." Charter schools are more likely to have students taking sets of STEM coursework they identify as "advanced" or "basic," as well as to have students who transfer out of the charter school and those who drop out. These findings raise questions about school organization in terms of how schools are construing students' needs and organizing coursework to meet those perceived needs. Further, the authors use SNA in ways that are both descriptive and predictive.

Many of the pieces in this special issue and in the policy networks in education literature generally examine the underlying communication, funding, or ideological networks of powerful elites (individual or organizational) shaping policy. Nancy Green Saraisky and Oren Pizmony-Levy's piece provides a unique contribution in that it examines *grassroots activists*— the parents and caregivers opting children out of state tests (generally assessments adopted to measure the CCSS). The authors draw on social movement theory, asking about the extent to which those who opt-out are acting as individuals or have contact with various organizations that might be shaping their positions. The authors draw on two large scale surveys of opt-out participants at different timepoints, visualizing affiliation networks at each time point of the organizations who had contacted participants (i.e., two organizations are connected when one or more respondents reported that they were contacted by both organizations). They find that while national organizations' activity remained strong, only state-level organizations in the Northeast continued to mobilize between 2016 and 2018. Those in other areas reduced their activism by 2018. Both liberals and conservatives were more likely to be contacted by opt-out organizations in 2016, reflecting the transpartisan coalitions of resistance to the CCSS and related assessments, though fewer conservatives were contacted in 2018. The authors also conduct logistic regression analyses to identify the extent to which having contact with an organization in the opt-out network relates to survey respondents' likelihood of having particular attitudes towards reform. The authors provide some suggestive evidence that opt-out supporters who had contact with social movement organizations were less likely to see common expectations for student learning (i.e., standards) as very important. Additionally, respondents who had contact with social movement organizations were more likely to view education as the proper responsibility of the local and state levels, rather than the federal government.

Serena Salloum, Emily Hodge, and Susanna Benko's piece also investigates CCSS networks, but of state-provided resources rather than individuals. Like the David et al. and Green Saraisky and Pizmony-Levy pieces, it both describes and predicts. The first part of the study is a descriptive SNA of the organizations sponsoring state-provided resources for English language arts teachers, and the

second part uses a regression model appropriate for network-based data to understand the characteristics associated with states turning to the same organizations. Based on the idea that there was widespread uncertainty in the policy environment in the wake of CCSS adoption, Salloum and colleagues use an institutional theory lens to examine attributes associated with pairs of states having shared organizational ties (DiMaggio & Powell, 1983). The authors use multiple regression quadratic assignment procedure, a quantitative model that takes into account network data's interdependencies, to understand how various state attributes representing isomorphic change processes (e.g., adopting the CCSS, geographic region, and the degree of local control over curriculum, among others) are related to the number of shared organizations that states turn to for information about standards. The authors find that both RTTT application and CCSS adoption are related to states turning to similar numbers of shared organizations. These variables represent coercive isomorphism, providing evidence that applying for RTTT not only influenced CCSS adoption, but also shaped how states approached CCSS implementation in the guidance provided for teachers.

Together, these articles provide models for how to use SNA to describe and predict education policy networks. The articles also suggest new theoretical approaches outside of traditional sociological approaches to SNA, including those from political science as well as institutional theory and social movement theory. In addition, Galey-Horn and Ferrare offer a set of theoretical approaches from political science to apply to education policy networks. As others continue to innovate in their methodological approaches to SNA and analyze networks through various conceptual and theoretical frameworks, research will be needed to broaden our understanding of policy networks. The next wave of SNA research has the potential to help us more deeply explore agendas and power relationships in policy formation and implementation, as well as the influence of brokers on policy ideas.

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