Using Policy Network Analysis to Understand Ideological Convergence and Change in Educational Subsystems

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Abstract: In recent years, education policy scholars have begun to utilize social network concepts and methods to describe contemporary policy changes across P-16 levels. While many insights have emerged from this growing literature base, we argue that a more formal network approach rooted in policy network analysis (PNA) is needed to fulfill its conceptual and analytical ambitions. Policy network analysis integrates concepts from social network analysis with theoretical assumptions developed in the field of political science. Toward this end, we first argue that a more rigorous treatment of policy beliefs is needed to analyze the impact of ideas on the policy agenda. Existing literature on the ideological dimensions of market-based reform movements tends to define them

largely within the bounds of neo-liberalism and thus far has failed to systematically explain how policy beliefs emerge and converge in this context. Second, we contend that previous work has generally lacked theoretical grounding in formal policy network analysis (PNA). Although there are clear links between the concepts and findings in traditional PNA literature and educational research – particularly the use of networked governance as a concept for understanding the interconnectedness of educational reform networks – a more diligent application of PNA theory and methods would enable educational policy scholars to gain deeper insights into the explanatory processes of policy change. We pay particular attention to the usefulness of these approaches for examining two-mode network data and for modeling ideological policy change.

Keywords: policy network analysis; ideological politics; market-based policies; policy change

Uso del análisis de redes de políticas para comprender la convergencia ideológica y el cambio en los subsistemas educativos

Resumen: En los últimos años, los académicos de las políticas educativas han comenzado a utilizar conceptos y métodos de redes sociales para describir los cambios políticos contemporáneos en los niveles P-16, pero se necesita un enfoque de red más formal arraigado en el análisis de redes de políticas (ANP). El análisis de redes de políticas integra conceptos del análisis de redes sociales con supuestos teóricos desarrollados en el campo de las ciencias políticas. A pesar de los vínculos entre los conceptos y los hallazgos en la literatura tradicional de la ANP y la investigación educativa, en particular el uso de la gobernanza en red como concepto para comprender la interconexión de las redes de reforma educativa, una aplicación más diligente de la teoría y los métodos de la ANP permitiría a los académicos de la política educativa profundizar conocimientos sobre los procesos explicativos del cambio de políticas. Prestamos especial atención a la utilidad de estos enfoques para examinar datos de red de dos modos y para modelar cambios de políticas ideológicas.

Palabras-clave: análisis de redes de políticas; política ideológica; políticas basadas en el mercado; cambio de política

Usando a análise de rede de políticas para compreender a convergência ideológica e a mudança nos subsistemas educacionais

Resumo: Nos últimos anos, estudiosos de políticas educacionais começaram a utilizar conceitos e métodos de redes sociais para descrever mudanças políticas contemporâneas em todos os níveis P-16, embora seja necessária uma abordagem de rede mais formal enraizada na análise de redes políticas (PNA). A análise de redes políticas integra conceitos da análise de redes sociais com pressupostos teóricos desenvolvidos no campo da ciência política. Apesar das ligações entre os conceitos e descobertas na literatura tradicional de PNA e a pesquisa educacional - particularmente o uso de governança em rede como um conceito para compreender a interconexão das redes de reforma educacional - uma aplicação mais diligente da teoria e dos métodos de PNA permitiria que estudiosos de políticas educacionais se aprofundassem percepções sobre os processos explicativos de mudança de política. Prestamos atenção especial à utilidade dessas abordagens para examinar dados de rede de dois modos e para modelar mudanças ideológicas nas políticas.

Palavras-chave: análise de rede de políticas; política ideológica; políticas baseadas no mercado; mudança de política

Introduction

In recent times, educational subsystems in the United States have been undergoing significant institutional change toward the adoption of policies that expand educational privatization and market-based approaches to education (DeBray-Pelot & McGuinn, 2009; Galey, 2015). During this time, powerful, well-resourced coalitions of reformers have been working to restructure and influence the governance of U.S. schooling systems. This trend is evidenced, for example, in the growth of charter schools and alternative certification programs, which seek to offer educational services that have long been controlled by public school districts and teacher unions (Mehta & Teles, 2012; Reckhow & Snyder, 2014).

Philanthropic foundations and think tanks have played an important role in this transformation by serving as intermediary organizations between policymakers and educators. A growing body of evidence shows that these intermediary organizations promote "incentivist" reforms, a category of market-based reforms that offer incentives for improved educational performance (Scott, 2009, Scott & Jabbar, 2014). Merit-based pay systems, like Louisiana's Educator Effectiveness initiative or Texas's District Awards for Teaching Excellence, which reward teachers for student test score gains, are prominent examples. Despite opposition from teachers' unions, increasing public criticism, and mediocre results, these programs continue to percolate through the educational policy landscape.

How did this dramatic shift in policy come about and why have educational stakeholders been relatively ineffective at stemming the expansion of market-based programs? To answer this question, scholars are increasingly turning to social network theories and methods to examine the role of policy networks in shaping the proliferation of market-based educational reforms. A policy network is a set of private and public actors (organizations or individuals) who exchange resources in an effort to influence policy outcomes through formal and informal channels. Through these techniques, for example, researchers have illustrated how Teach For America (TFA) has constructed an expansive human capital network that has accelerated the expansion of the charter school sector and deregulation of teacher education (Kretchmar, Sondel, & Ferrare, 2014, 2016). Evidence from these studies suggest that these policy networks promote the expansion of market-based policies by lobbying for changes in state and local laws. These efforts are augmented by media strategies to influence the public discourse and legitimize policy beliefs that buttress these reforms.

This line of work tends to raise important concerns about the influence of private organizations and concentrated wealth on educational politics and policy. Overall, two robust narratives have emerged from the research on policy networks that promote market-based reforms. The first narrative couches this trend into explanatory frameworks for illustrating the rise and consequence of neoliberal education policies at the turn of the 21st century (e.g., Apple, 2006; Ball, 2012; Lipman, 2011). The second narrative focuses on the political behavior of policy actors that promote the expansion of market-based policies in educational systems, particularly their coordinated activities through research use and philanthropic funding (Ferrare & Reynolds, 2016; Ferrare & Setari, 2018; Hodge, Salloum, & Benko, 2016; Reckhow, 2013; Scott & Jabbar, 2014; Snyder & Reckhow, 2016). Both research streams touch on the rapidly growing political strength of new advocacy organizations in educational domains, as well as emerging patterns of evidence use focused on advocacy. Despite the methodological and conceptual similarities between these narratives – including, for example, the centrality of policy entrepreneurs, the disenfranchisement of traditional educational stakeholders, and dramatic shifts in policy discourses – there is little in the way of existing theoretical paradigms to unify this research community.

In the following, we argue that a formal network approach rooted policy network analysis (PNA) is needed to unify these areas of the literature and fulfill the conceptual and analytical ambitions of the work. Policy network analysis (PNA) integrates concepts from social network analysis with theoretical assumptions developed in the field of political science (Knoke, 2011; Rhoades, 2006). In this sense, PNA is related to – but distinct from – more standard approaches to social network analysis that tend to appear in the education policy literatures. Although there are clear links between the concepts and findings in traditional PNA literature and educational research – particularly the use of networked governance as a concept for understanding the interconnectedness of education reform networks – a more systematic application of PNA theory and methods enables educational policy scholars to gain deeper insights into the explanatory processes of policy change.

Our article has four sections. In the first, we discuss the emergence of research that focuses on education policy networks. Next, we introduce policy network analysis (PNA) from political science and identify the key concepts and processes relevant to understanding ideological change in policy sub-systems. We then adapt these concepts to construct a conceptual framework of major ideological policy change specific to educational domains. In the third section, we elucidate our conceptual framework by reflecting on three examples of market-based reform in education. Finally, we highlight implications of this framework for future educational policy research.

Education Policy Networks

The study of education policy networks has generally focused on two types of models: network governance and interest intermediation (Rhodes, 2006). The work of Stephen Ball, for example, draws extensively on the networked governance model popularized by European researchers examining recent patterns of change in their countries' national and sub-national public policy sectors (e.g., O'Toole, Hanf, & Koppenjan, 1997; Parker, 2007; Rhodes, 1995). The governance model conceptualizes policy networks as an informal form of governance in which public and private actors coordinate action to mobilize widely dispersed political resources (Borzel, 1997). Ball's research on policy networks in international and national settings represents a pioneering theoretical effort to bridge the gap between the political science literature and educational policy domain research (see Ball, 2008, 2009, 2011, 2012; Ball & Junemann, 2012; Exley, Braun, & Ball, 2011). Although the networked governance model has proven to be extremely useful for understanding educational policy change (e.g., Au & Lubienski, 2016), there are other ways to conceptualize policy networks that merit further consideration for interpreting educational reforms.

In contrast to the networked governance model, which focuses on interrogating the balance between public and private power in policymaking, the interest intermediation model defines policy networks as a generic concept applicable to all types of relations between public and private policy actors. It can be utilized more broadly by educational researchers as a "meso-level" concept of interest group intermediation in which resources are exchanged between the government and organizational interests (Borzel, 1997; Lubell et al., 2012; Rhodes & Marsh, 1992). Interest groups, while widely variable in form and political aims, are all intermediary organizations that attempt to mediate between policymakers and other organized social groups. Within the interest intermediation framework, interest groups act as brokers in policy networks as a function of their location between interests and decision-making institutions (Heaney & Strickland, 2017).

Some educational scholars have begun examining networks using the interest intermediation model, but the model is often applied implicitly (e.g., Kolleck, 2016; Reckhow, 2010; Song & Miskel, 2007; Young, Wang, & Lewis, 2016). Despite conceptual similarities - all these studies test theories of policy change using social network analysis as an analytical tool - this body of research has not been subsumed under a unifying framework. Several studies (e.g., Ferrare & Reynolds, 2016; Reckhow & Snyder, 2014) have employed foundation giving data, for example, to elucidate policy networks that mediate policy resources between philanthropic organizations and their local recipients. Another promising approach articulates the ideological dimensions of policy networks using social media data. For instance, a study by Supovitz, Daly, and del Freso (2017) analyzes Twitter data to explore arguments of the major coalitions supporting and opposing the Common Core.

Drawing mainly from the interest intermediation tradition, we now introduce policy network analysis (PNA) as a distinct field of study that combines theories from political science with concepts and methods from social network analysis. We then present a framework for using PNA to study policy change in educational sub-systems.

Policy Network Analysis: Key Definitions and Concepts

As a distinct field of study, policy network analysis (PNA) has roots in the discipline of political science. The main objectives of PNA include: to identify the important actors involved in policymaking institutions; to describe and explain the structure of their interactions; to discuss the implications of those structures for policymaking; and to explain and predict policy outcomes and collective policy decisions (Knoke, 2011). The analytical value of this approach can be found in its conceptualization of policymaking as a process that involves a diverse and interdependent set of actors working together over time and across multiple levels of the government to influence and change policy. As defined by Rhodes:

> Policy networks are sets of formal institutional and informal linkages
> between governmental and other actors structured around shared if endlessly
> negotiated beliefs and interests in public policymaking and implementation.
> These actors are interdependent and policy emerges from the interactions
> between them. (2006, p. 424)

The boundaries of a policy network are related to the concept of a "policy domain subsystems," although researchers rarely use this term, preferring to use either the term policy domain, more common in political science, or policy subsystem, more common in public policy. We will use the term policy domain moving forward.

According to PNA theory, policy networks consist of individual actors, groups of actors, and organizations operating within a policy domain, which includes a broad range of private and public actors and consists of major coalitions that work together differently depending on the policy context. Knoke (2011, p. 211) clarifies the relationship between policy networks and policy domains noting that, "a policy domain delineates a bounded system whose members are interconnected by multiple policy networks." Education is one example of a policy domain subsystem; others include healthcare, welfare, agriculture, energy, national defense, and transportation.

Within domains of policy networks, policymaking is not an orderly affair, but rather a constant struggle over conflicting definitions of policy goals, problems and solutions. Policy actors forward their policy agenda by influencing the policy discourse and forging coalitions with like-minded actors. Further, policy domains are socially constructed by the mutual relevance of

actors' policy preferences and actions on policy events and recognition that they must take each other's behavior into account. This contrasts with institutionalist theories of group behavior, which are more common in political research and which assume that actors have predetermined interests that guide their political activities (Borzol, 1997).

Like other network sciences, the fundamental building blocks of policy networks are a bounded set of policy actors and one or more sets of relations that links those actors. Network actors in PNA are usually formal organizations, such as political parties, interest groups, non-profit organizations, executive agencies, and legislatures. PNA can also include individual actors. The basic activity of policy networks involves the bargaining between actors with resources in an environment where power structures are shaped by formal institutional arrangements and influenced by informal relationships. More broadly, formal network concepts and statistical models of policy networks can yield important insights into network formation, collective action, policy outcomes, and structural configurations (Kenis & Schneider, 1991).

Node Key

O = policy actor

□ = policy idea

Nodes are sized by degree.
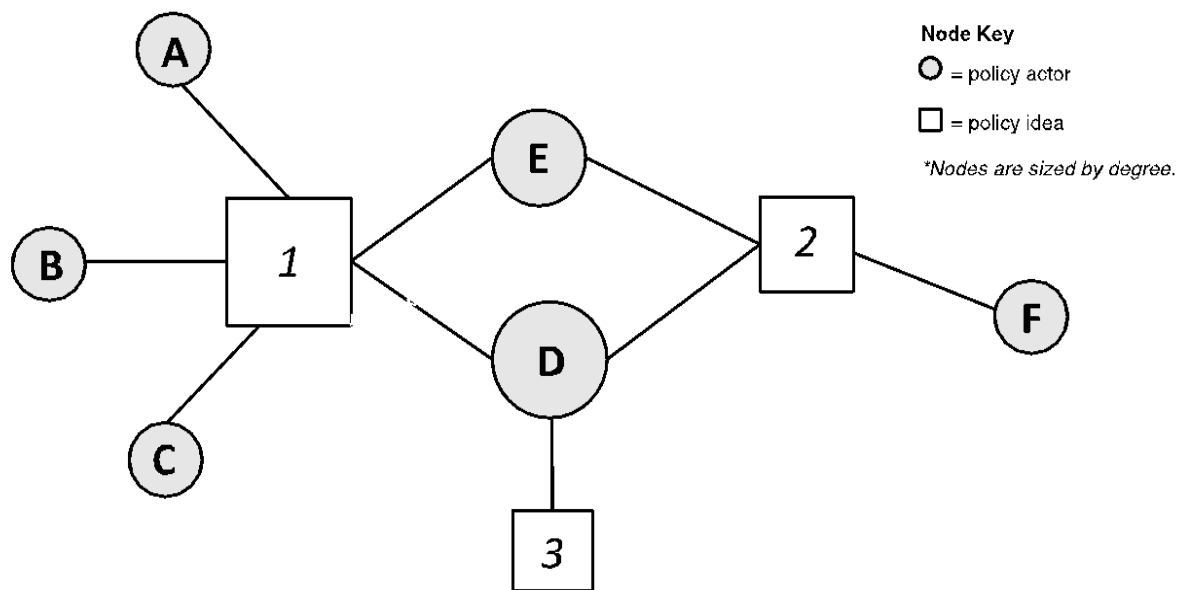
Figure 1. Example of a two-mode policy network

In contrast to other network sciences, and social network analysis specifically, PNA often involves two-mode, as oppose to one-mode, networks structures. A two-mode network – or affiliation network – includes a set of actors and a set of "events" – both of which can be thought of as "nodes" in the network. The event mode of an affiliation network can take on numerous forms, such as a set of organizations (e.g. foundations), policy beliefs, or types of evidence used by advocacy organizations. The generic two-mode network in Figure 1 illustrates the shared policy objectives of actors as a network of ideological relationships. Actor E and Actor D, for example, both support Idea 1 and Idea 2 indicating ideological affiliations. The relationship between actors' beliefs about educational issues and policy ideas underpin the ideological structure of policy networks. In addition to the multiple types of events, affiliation networks can be structured around different types of relationships that center on resource exchange (e.g., financial donations, information exchange, personnel).

Policy brokers occupy important positions in policy networks and constitute a fundamental PNA concept for understanding ideological change. Generally speaking, a network broker is an actor who has ties to disconnected actors (Burt, 1992). In this sense, network actors in brokering positions have more opportunities than others to influence policy. Central actors in hierarchal network structures that act as "hubs" are one type of broker with centralized authority, brokering between many disconnected "spokes" (e.g., Scott & Jabbar, 2014). In PNA terms, "hubs and spokes" structures are referred to as core-periphery networks. Their network location gives them strategic benefits including an informational advantage for accessing and diffusing coalition knowledge and information, such as political information for venue switching and tactics for spreading new policy ideas. PNA research on intermediary organizations illustrates the importance of brokering positions in policy networks for engaging in multiple forms of information transmission and resource exchange (Fischer & Leifeld, 2015).

During periods of dynamic policy change, like Kingdon's (1984) policy windows, policy brokers may bridge institutional arrangements by facilitating informational processes through diffuse issue networks. Meanwhile, within coalitions, these actors serve as "idea brokers" that facilitate the symbolic and practical links between policy preferences in different discourse coalitions (Galey-Horn et al., 2020). Although discourse coalitions focus on one issue area at a time, there may be multiple justifications for supporting a policy (Leifeld, 2017). Idea brokers engender policy convergence across issue areas by forwarding "idea sets" that conform to a specific narrative about which problems are urgent, as well as which solutions are acceptable (Baumgartner & Jones, 1991; Mehta, 2013). Importantly, while network position explains an organization's power and influence within policy networks to some extent, influence is also a function of formal institutional power and decision-making authority.

Policy Networks as Ideological Coalitions

A growing number of PNA studies from the political science and policy studies literatures illustrate the ideological basis of group formation, political collaboration, and policy change (e.g., Calanni et al., 2015; Henry, 2011; Henry, Lubell, & McCoy, 2010; Kukkonen, Ylä-Anttila, & Broadbent, 2017; Weible & Sabatier, 2005). In traditional network terms, this process can be interpreted as a selection activity, modeled as how likely policy actors are to interact with each other (e.g. Calanni et al., 2015). Henry (2011) uses the term belief homophily to describe the formation of advocacy coalitions as a process of ideological convergence in reference to the term "homophily," which refers to the tendency for network actors to form ties with those with similar characteristics (Verbrugge, 1977, Kadushin, 2012). Research findings have provided evidence of the effects of belief homophily on tie formation in policy networks, indicating that shared political ideologies facilitate connections between actors in the same coalition (Henry et al., 2010; Kriesi & Jegen, 2001; Leifeld & Schneider, 2012; Weible & Sabatier, 2005).

At the same time, research by Leifeld and Schneider (2012) argues that the salience of ideological factors in the formation of ties depends on the context and type of network relation. While ideological affinity is an important precursor for collaboration between policy actors, information transmission does not depend on their ideological agreement. The goal of lobbying, for example, is to persuade government actors to support their preferred policy ideas. Altogether, past research indicates that mapping ideological coalitions is a critical first step for engaging in PNA. Previous work has conceptualized the ideological dimensions of policy networks that drive inter-dependencies across institutional and political boundaries as epistemically based systems, usually referred as policy belief systems (e.g., Weible & Sabatier, 2005). One critical decision faced by scholars of norm-based politics is how to operationalize

policy ideas, as well as which theories of political behavior to utilize for analysis. Three related approaches relevant for operationalizing ideological coalitions and change in PNA research are the advocacy coalition framework (ACF), discourse network analysis (DNA), and the Argumentation Discourse Analytic Approach (ADAA).

Advocacy Coalition Framework (ACF). Traditional ACF theory identifies three levels of policy-related beliefs conceptualized as a nested hierarchy of: (1) deep core beliefs, which represent broad normative values; (2) policy core beliefs, which are issue specific interpretations of deep core beliefs; and (3) secondary aspects. (Sabatier, 1987). Later revisions of ACF further distinguished between policy core beliefs that expressed a "fundamental policy positions" and "precepts with a substantial empirical component" (Sabatier & Jenkins-Smith, 1993), eventually labelled "policy core beliefs" and "policy core preferences" (Sabatier & Weible, 2007). The basic idea behind ACF is that various types of beliefs are ranked according to internalization, adaptability, and issue scope. Beliefs on one end of the continuum are deeply rooted, abstract and cannot be changed easily, whereas beliefs at the other end of the continuum are superficial, easily adaptable and very specific to a certain issue. Generally, actors are more likely to oscillate in support or opposition to specific policy solutions, such as new teacher mentoring programs, rather than broad system-wide beliefs, such as the proper role of government in society. Policy learning takes place within coalitions as actors negotiate policy preferences. More generally, ACF articulates the relationship between the ideological structure of actor beliefs and structure of political coalitions. Building on traditional advocacy coalition theory, PNA theory argues that coalitions within subsystems are relatively stable.

Discourse Network Analysis (DNA). Philip Leifeld's (2013, 2016, 2017) discourse network analysis (DNA) is an important evolution of ACF as a conceptual and methodological framework for ideological policy change. According to DNA, coalitions can be represented as a two-mode discourse network using actors' public statements about policy (from media appearances, legislative testimony, organizational websites, etc.). To operationalized coalitions, discourse networks can be analyzed directly as two-mode networks (e.g., Galey-Horn et al., 2020) or converted into normalized one-mode actor networks connected by shared belief ties (e.g., Leifeld, 2016). Discourse networks set the terms of debate in policy-making domains as competing ideological coalitions vie to draw the cognitive map that determine how the public and policymakers think about policy issues. Leifeld (2016) conceives of discourse networks as coalitions of multiple issue networks that focus on a problem-centered definition. Depending on the way discourse networks are conceptualized, coalitions can be operationalized across multiple policy core belief systems and issue areas (e.g., Leifeld, 2016), within one issue area (e.g., Fisher & Leifeld, 2019), or, at a more finite level, within a specific policy reform (e.g., Buckton et al., 2019).

More broadly, PNA research suggests issue area networks are important drivers of inter-coalition interest group identity and that they play a major role in policy reform movements. In his landmark study, Heclo (1978, p. 102) observes that participants' political and economic interests were often secondary to "intellectual or emotional commitments" when forming political alliances – leading to the emergence of "issue networks." Later work showed how issue networks shape coalition dynamics. Browne (1990), for example, showed that organizations build status within coalitions by forming niche identities – or an "issue niche." Later work by Heaney (2007), meanwhile, suggests that organizations assume multiple roles across different coalition dimensions, including representation, issues, issue positions, ideology, and tactics (see also Jacobson, 2011).

Argumentative Discourse Analytic Approach (ADAA). The argumentative discourse analytic approach (ADAA) presents a framework for studying the "mobilization of bias" (Hajer, 1993, p. 45). Policy studies that use ADAA (e.g., Cotton, Rattle, & Van Alstine, 2014) examine discourses within policy domains: homogenous and divergent ways of apprehending ambiguous social issues, which inherently draws out disputes over defining the terms of policymaking. Like traditional discourse analysis, ADAA focuses on uncovering the linguistic relationships embedded in conversational text. Discursive constructions are the central unit of analysis in ADAA and, in policy research, are typically conceptualized as policy narratives. A policy narrative is an interpretation of social reality that plays an essential role in the "clustering of knowledge, positioning of actors, and ultimately, in the creation of coalitions amongst actors of a given domain," or more simply, "discourse coalitions" (Hajer, 1993 p. 45). Research on discourse coalitions focuses on analyzing the socio-historical construction of ideological policy change. This approach locates coalition formation and the behavior of coalition actors in the context of the historical events and cultural trends in which the coalition operated.

According to Hajer (1993) actors in discourse coalitions coalesce around a shared social construct, which help people interpret and give meaning to the world around them by simplifying complex social phenomena. In policymaking arenas, actors structure arguments and frame political problems based on their perception of the dominant social dilemmas in a specific period (Hajer, 1995). In other words, the politics of discourse is a continuous and iterative process in which policy actors perpetually change the problem definition. Consequently, discourses are often fragmented and internally conflicted with various coalitions forming around a specific way of thinking about social problems. Hejer (1995) explains that "these coalitions are unconventional in the sense that the actors have not necessarily met, let alone that they follow a carefully laid out and agreed upon strategy" (p. 13). Rather, discourse coalitions derive their power from the grouping of actors around policy narratives.[1] Altogether discourse coalitions are conceptually like advocacy coalitions but use arguments and narratives to explain the behavior of policy actors rather than their views on policy instruments. Our model, which we present next, incorporates elements of both advocacy and discourse coalitions.

Figure 2 illustrates a general framework for characterizing an ideological system in terms of issue area networks that coalesce around policy narratives. This model of an ideological system draws on concepts from ACF, DNA, and ADAA. We bring together the nested ideological structure of ACF's policy belief system with explanatory frameworks of DNA and ADAA to understand coalition behavior. The model maintains ACF's policy core beliefs at the broadest ideological construct but focuses attention on policy narratives and issue areas which comprise the middle layers of the system as central organizing concepts. In this model, coalitions are formed within and across issue areas during policy debates to sustain a particular policy narrative.

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[1] Policy paradigm theory (Hall, 1993), notably utilized by Mehta (2010, 2013) to examine educational reforms, similarly argues that master narratives govern the complex realities of a policy subsystem and that new problem definitions can catalyze major policy reforms. Stone's (2001) policy paradox theory as applied by Wong (2017) to study to opt-out movement likewise focuses on the strong influence of defining policy problems in the formation of reform coalitions.
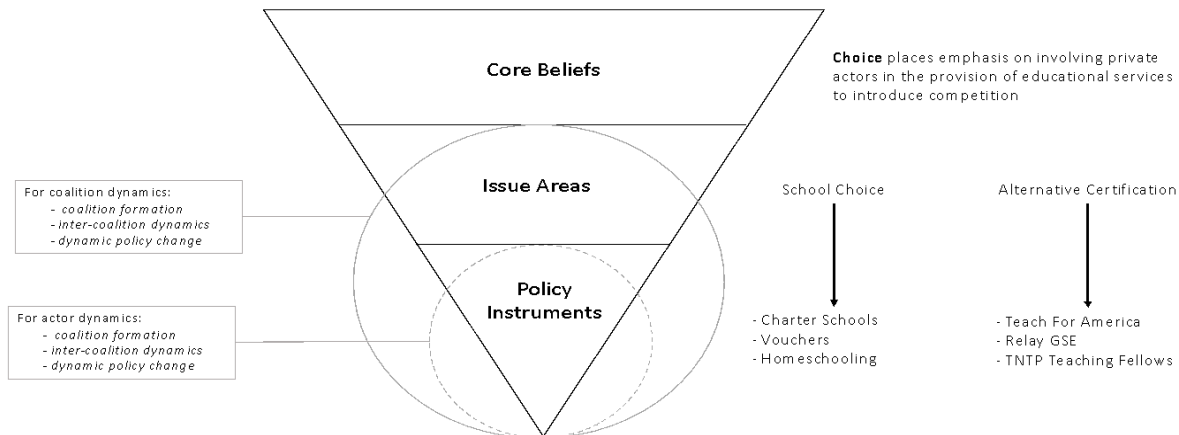
Figure 2. Issue area framework
Note: GSE = Graduate School of Education, TNTP = The New Teacher Project

This model interprets policy change through the lens of discourse analysis, which asserts that ideological reforms are associated with the increasing dominance of an identifiable policy narrative and institutions that challenge existing power structures. According to Hajer (1993), "If a discourse is successful – that is to say, if many people use it to conceptualize the world – it will solidify into an institution, sometimes as organizational practices, sometimes as traditional ways of reasoning" (p. 46). Numerous scholars have similarly linked policy innovations with sudden, dynamic policy change (e.g., Baumgartner and Jones,1993), underpinning a fundamental characteristic of ideological policy change: the presence of powerful new ideas that shift debates and disrupt subsystem dynamics, destabilizing policy environments.

A PNA Framework for Educational Policy Change

Traditional interest group theories of political behavior may not adequately capture the overlapping political or social dimensions of inter-organizational cooperation and conflict. Conventional theories of partisan politics, for example, cannot account for widespread bipartisan support of major educational reforms over the past two decades. If the traditional left-right spectrum of political beliefs drove interest group behavior, then Democrats and Republicans would be in conflict over educational issues. In recent years, however, the opposite has been true (Mehta, 2013). Instead, accountability reforms, charter schools, and teacher evaluation, for example, have received widespread support by members of both majority political parties. What explains their ideological convergence around market-based reforms? In what follows, we synthesize the PNA concepts introduced above into a framework that provides a conceptual lens to address complex questions about ideological policy change and reforms in federal, state, and local policy-making arenas. The framework may also be used to examine other policy processes, such as agenda setting and political behavior (e.g., campaign funding). We first introduce our framework by mapping

ideological coalitions in educational policy domains, and then subsequently use the framework to analyze recent ideological policy changes related market-based reforms.

Mapping Ideological Coalitions

Policy belief systems are an important construct for mapping ideological networks. Researchers have characterized and synthesized prominent issue areas in educational policy domains. In an analysis of charter school laws in Arizona, Michigan, and Georgia, for example, Bulkley (2005) finds that charter school advocates are motivated by broad policy goals, like creating more competition in education and deregulating and decentralizing education. In Figure 2, these kinds of ideas correspond with policy core beliefs. We forward this scholarship by conceptualizing an educational belief system to analyze ideological policy change. Using the model presented in Figure 2 above, we identified four core beliefs, 1 issue areas, and 55 policy reforms.[2] Table 1 summarizes our educational policy belief structure and links core beliefs with issue areas.

Policy core beliefs. We identified four policy core beliefs, *efficiency*, *professionalization*, *choice*, and *equality*. In our framework, core beliefs are normative beliefs that align with traditional left-right political ideologies that define the proper role of markets and government in society, which groups are most important, and who should oversee policymaking and implementation (Sabatier & Weible, 2007). The policy core beliefs in educational policy domains align with two sets of opposing values inherent in American political systems: efficiency vs. quality (i.e., "professionalization") and liberty (i.e., "choice") vs. equality.

Efficiency vs. professionalization. According to Wood and Theobald (2003), efficiency policies emphasize economic cost-benefit and optimization of policy performance versus limited attention to input-output considerations. Accountability and evaluation policies fall under this domain. In contrast, quality as expressed by professional expertise in educational contexts corresponds to teacher professionalization. Professionalization policies are characterized by an investment in training and professional support for teachers, deference to teachers' expertise, and professional autonomy over classroom instruction (Mehta & Teles, 2012).

Choice vs. equality. Individual liberty is represented by market-based choice. In educational domains, the choice policy core belief emphasizes involving private actors in providing educational services. On the other side, equality policies focus on the use of political authority to redistribute critical resources to close "gaps" in human needs. In educational terms, policies aimed at addressing broader social inequities, such as desegregation and funding equity, fall into the equality core belief (Kirst & Wirt, 2007).

These core beliefs are an important factor in the construction of policy narratives and the activation of coalitions around ideological reform. Recall that, according to ADAA, policy narratives articulate policy core beliefs as a "storyline" about which educational issues are important and why. Hajer (2006) notes that a narrative "combines elements of the various discourses into more or less coherent whole, thus concealing the discursive complexity" (p. 70). Policy narratives are advanced by distinct, but interrelated arguments that vary in origin but are united by a similar way of defining policy problems and valuing reform ideas – a phenomenon called *discursive affinity*. Discursive affinity explains how actors can act collectively without directly interacting, or even knowing, one another

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[2] The foundation for this belief system was established in Galey and Ferrare (2016).

Table 1

Ideological System for Educational Policymaking

Policy Core Belief	Issue Areas	Policy Reforms
Efficiency: Improve returns on educational investment by holding schools and teachers accountable for educational outputs	School Accountability	Standards-based testing systems, annual high-stakes testing, school report cards
	Teacher Evaluation	Value-added models of evaluation, multiple measures evaluation, classroom observation rubrics
	Educator Incentives	Merit-based pay, performance-based employment contracts, competitive grants for teacher quality reforms
	Economic Competitiveness	STEM teacher quality reforms, career and dual enrollment programs, technology-based teaching mandates
	Effectiveness of Teacher Education	Performance-based evaluation systems for teacher preparation programs, data-driven professional development
Professionalism: Improve instructional capacity by investing in inputs for teacher training and deferring to teacher professional autonomy	Traditional Preparation	University-based teacher preparation programs, preservice classroom teaching experience
	Collaborative Learning	Novice induction programs, instructional coaching programs, professional learning communities
	Professional Autonomy	Collective bargaining rights for teacher unions, tenure system with seniority, raise teacher pay, improve working conditions
Choice: Introducing competition will motivate schools to improve and innovate and give students and families educational choices tailored to their needs	School Choice	Charter schools, school vouchers, intra-district choice
	Alternative Certification	Alternative teacher certification programs Recruitment programs for individuals that do not have traditional educational training
	Alternative Service Providers	Subsidies for private organizations to research and develop innovative teaching methods, private contracts for educational and ancillary services
Equality: Political authority should be used to redistribute critical resources based on relative economic needs and to redress historical social injustices	Inequality of Inputs	Redistributive school funding models, redistributive teacher quality programs
	Wrap-around Reform	Comprehensive social services based in schools, parental and community partnerships
	Serving Diversity	Minority teacher recruitment, training to teach high-needs and diverse communities

Issue Areas. One level below policy core beliefs in our framework is issue areas. Issue areas correspond with the more general notion of "discourse" (c.f. Schmidt, 2010), which operates at the "discursive" layer of politics (Leifeld, 2013). We identify 14 issue areas ranging from school-based accountability to school choice to comprehensive school reform (see Table 1). Issue areas are topical while policy narratives correspond to definitions of policy problems and communicate assumptions about the behavior of educational actors. The school choice issue area, for example, is underpinned by the policy narrative that competition will motivate schools to improve and innovate. The teacher evaluation issue area is based on the policy narrative that educators should be held accountable for student performance. Importantly, this framework enables the examination of both intra- and inter-coalition dynamics. To observe competing coalitions, we can examine the structure of divergent issue area networks, such as networks with opposing narratives on teacher preparation (i.e., alternative certification vs. schools of education). In this way narratives are broad in scope, connecting policy core beliefs to educational issues, which in turn, are associated with specific policy reforms.

Policy Reforms. While issue areas are important for mapping conflict and collaboration across coalitions, oftentimes major policy change involve the analysis of specific reform movements. Within issue networks group members may be divided over approaches to time specific, contextual policy instruments called policy reforms. Within the school choice issue area (Fig. 2), for example, policy actors that support the expansion of school choice may build coalitions around policy reforms ranging from school vouchers to charter schools to homeschooling. In Bulkley's (2005) study, for example, school voucher advocates in Michigan shifted their attention to charter school reform for political expediency - they realized that charter schools were more palatable to a wider range of actors than vouchers.

Our framework thus conceptualizes fundamental core beliefs, issue areas, and policy reforms germane to contemporary educational sub-systems – especially those in the United States. However, the specific substance of the beliefs, issue areas, and reforms can be adapted to specific contexts while retaining the overall conceptual structure. We now reflect on three reforms to further elucidate this framework and its potential to guide future research that focuses on understanding the network dynamics driving policy change in education.

Application: Three Examples of Market-Based Reforms

The rise of market-based educational policies is illustrative of ideological policy change. Educational policy researchers have noted the dynamic nature of educational policy change related to, for example, the enactment of accountability policies, the proliferation of charter schools, the standardization of curriculum, and the expansion of alternative certification programs. Recent political analysis indicates that members of reform coalitions that advocate market-based policies coordinate across multiple federal, state and local policymaking venues constituting an informal, but powerful, national reform network. More recently, formal examples such as the PIE network have also emerged (see Ferrare et al., forthcoming; Ferrare, Carter-Stone, and Galey-Horn, forthcoming). Here, we use the theoretical framework introduced in the previous section to interpret three examples of market-based policy change and raise questions for future research. First, we describe how the funding networks for alternative certification programs systematically fund charter schools as well, promoting ideological convergence. Second, we apply our framework to understand the research-use activities of intermediary organizations in advancing charter school reforms in major urban school districts as a two-mode network of research producers and consumers. Third, we

illustrate how the activities of policy brokers in the CCSS reform network promoted ideological policy change.

Example 1: Teach For America, Philanthropic Foundations, and Policy Convergence

Over the past two decades, private foundation funding has played a major role in the rapid expansion of alternative certification programs and charter school reform (Au & Lubienski 2016; Kretchmar, Sondel, & Ferrare, 2014, 2016; Reckhow, 2013; Reckhow & Snyder, 2014; Scott, 2009; Scott, 2015). The policy network framework indicates that policy actors will converge around shared narratives. Here, we show how these issue networks converged to form coalitions in educational policy domains through narratives grounded in policy core beliefs of choice and equality.

Since the early 2000s, corporate philanthropists have poured large sums of money into the expansion of both Teach For America (TFA) and charter schools. Most notably, in 2010, the now prominent charter management organization, Knowledge is Power Program (KIPP) received $24 million from 9 of the 15 major donors in education. In the same year, TFA received $44.5 million from 13 of the 15 major donors (Reckhow & Snyder, 2014, p. 189). This convergent pattern of funding even extended to non-major foundations who typically reserve funding for local organizations (Ferrare & Reynolds, 2016). Early on, convergent funding networks provided the capital to seed TFA and charter school reform initiatives in districts with sympathetic leaders. This strategy allowed local leaders to circumvent traditional funding structures and political controversy, while at the same time providing foundations with the opportunity to implement pilot programs (Scott, 2009; Saltman 2010, 2012). Politically, these experiments became proving grounds for TFA and charter schools and often made struggling, urban school systems (e.g., New Orleans) the focal point of national debates over the merits of these reforms. By the 2010s, convergent networks had evolved into a recognizable political phenomenon that continued to shower TFA and charter school with financial largesse.

The framing of issue areas was a critical strategy for building discourse coalitions. Both TFA and charter school advocates fused together historically disparate policy core beliefs of choice and equality through discourses of entrepreneurship and innovation alongside educational inequality in terms of the racial and income-based achievement gap. Within TFA organizations, this was manifest in the policy narrative of the individual "exceptional teacher" based on the notion that highly effective teachers were needed to overcome social inequality. From its inception in 1989, TFA promoted an ideal to eliminate educational equality through the efforts of elite college graduates (Kopp, 2001). Charter school organizations, meanwhile, emphasized the policy narrative of school liberation, arguing for a competitive policy environment that "frees schools" from bureaucratic rigidity which allows them to develop the innovations needed to address inequality. Both narratives were appealing to wealthy philanthropists and corporate sponsors.

As TFA and the charter school reform movement matured, philanthropic funding ties were reinforced by other resource exchange relationships embedded in these education policy networks. Namely, TFA and charter school programs evolved into as "feeder organizations" for entry into powerful, elite networks of leaders and groups that work across multiple policy domains (Kretchmar, Sondel, & Ferrare, 2014, 2016; Scott et al., 2016). These networks form the bedrock of a rapidly growing bureaucratic structure, albeit informal, that owns, operates, and staffs charter schools. Further, by all accounts, this informal charter school bureaucracy is intent on expanding by continuing to supplant local, public school systems with networks of charter schools. This is ironic

given the ideological foundations of charter school reform, which argues that school choice will generate a more efficient system by emancipating schools from bureaucratic constraints.

Contrasting with traditional studies of money in politics, which tend to focus on the impact of campaign contributions on politicians' voting records, PNA offers a sociological assessment of political influence that illustrates the interdependencies between money and ideas in policymaking. Sociological because policy networks are informal and organized around evolving ways of interpreting policy problems. The PNA approach shows how foundations and wealthy philanthropists drove the convergence of issue networks, which led to policy convergence around market-based reforms. Further, this method of understanding reform crystalizes the profound institutional and political consequences of concentrated philanthropic funding in public policy domains. PNA offers researchers an analytical framework underpinned by rigorous empirical methods that links the concentration of philanthropic funding (i.e., the density of funding networks) to specific policy changes (i.e., the density of overlapping issue networks).

Example 2: Charter Schools, Intermediary Organizations, and Research-Use

In this example, we portray the evolving influence of intermediary organizations that produce and disseminate education research in charter school issue networks. Charter schools are publicly funded schools that are autonomous from local school districts and are subject to fewer regulations than regular public schools. Between fall 2000 and fall 2016, overall public charter school enrollment increased from 0.4 million to 3.0 million. This trend is pronounced in large, urban school districts where the number of charter schools that enrolled at least percent of students went from 6 in 2000 to 18 in 2005 and then to 45 in 2016 (Baker, 2016). Charter school advocates assert that the competitive pressures introduced by charter schools motivate public schools to innovate and improve, while opponents argue that charters drain public funding and exacerbate existing inequalities (Berends, 2015).

In policy debates, research evidence has a technical role to inform the policy process, but research in a political capacity involves validating policy core beliefs using narratives. In charter school reform, research-use has been prolific and often, although not always, politicized. Intermediary organizations have occupied a key position as a broker of research evidence in local policy networks. In several urban school systems (e.g., Denver, New Orleans, New York City), in particular, intermediary organizations were central in network hierarchies of research information, often acting as "hubs" that brokered policy expertise and analysis between many unconnected "spokes" (Scott & Jabbar, 2014). Intermediaries include research consortia, foundations and philanthropies, think tanks, education and charter management organizations, as well as organizations that focus on educational reform advocacy and civil rights (Scott et al., 2017). These organizations used research strategically within and across issue networks to build coalitions and influence the policy discourse to expand charter school reforms.

Across educational policy domains, debates over charter school reform were characterized by cleavages along broad ideological lines with charter school reformers in one coalition and those that opposed charter school reform in another. In this context, intermediary organizations produced, consumed, attenuated, interpreted and disseminated research used by coalition actors on both sides of the debate. Foundations, for example, played an important role in earlier stages of reform by forging relationship with local policymakers and disseminating research that legitimized charter school reform (Jabbar & Scott, 2014). Foundations were a "key link between particular intermediary organizations and national, state, and local policymakers" giving them more opportunity to influence policy (Scott et al., 2017, p. 20). Put differently,

foundations anchored the formation of pro-charter coalitions that mobilized bias using research evidence that promoted a narrative of charter school effectiveness.

During later stages of reform, when charter schools were a significant part of the educational infrastructure, the debate often turned to local issues raised by coalitions that challenged the narrative of charter school effectiveness. In New Orleans, for example, Families and Friends of Louisiana's Incarcerated Children (FFLIC) published a report titled "Pushed Out," which documented the charter system's alleged widespread exclusion of students with behavioral problems (National Economic and Rights Initiative and FFLIC, 2010). Other organizations raised similar concerns about charter schools' effects on, racial segregation, teacher quality and local control (Debray et al., 2014). Further, intermediary organizations interpreted the same research evidence differently. The Center for Research on Education Outcomes (CREDO, 2009) study of charter schools between 2001 and 2009, for example, found that, on average, Louisiana's charter school students outperformed students in traditional public schools in reading and math. The CREDO study evidence became a major selling point for charter school advocates. Charter school detractors, on the other hand, remained skeptical, asserting that other contextual factors, such as Louisiana's selective enrollment process for charter schools, and not the effectiveness of charter schools explained the differences in student achievement. Altogether, intermediary organizations framed analysis and research findings in ways that supported their coalition's ideological stance on charter school reform.

In districts with contending pro- and anti-charter coalitions, research evidence was highly politicized, which in turn, bifurcated the policy discourse and delegitimize research evidence. In New Orleans, local actors distrusted information coming from intermediary organizations with a perceived political agenda. Consequently, local policy domains with active charter school networks were characterized by information-redundancy and the prevalence of "echo chambers" (Goldie, Linick, Jabbar, & Lubienski, 2014). Echo chambers refer to the tendency of organizations to selectively reference the same sources of information to guide decision-making and are a feature of ideologically homogenous policy networks (e.g., Jasny & Fisher, 2019)

Finally, intermediary organizations acted as policy forums, in which actors engage in information transmission (e.g., mediating local information channels, coordinating knowledge sharing, disseminating reports), as well as myriad political activities to extend their influence (Fisher & Leifeld, 2015). Organizations, for example, lobbied politicians, advocated for the network to promote specific programs (e.g., charter management organizations) and advertised their work to boost their status within the network. More specifically, foundation funding influenced research-use across coalitions by shaping which studies were commissioned and by determining which issues organizations emphasized in terms of research evidence (Scott & Jabbar, 2014). In a few policy domains with large charter school coalitions, informal networks characterized advance stages of networked governance with organizations sharing information and coordinating action within and between coalitions.

In sum, charter school issue networks are characterized by intermediary organizations that produce and disseminate education research. The PNA framework is notable for its analytical capacity to closely examine the influence of politicized research on policy debates. As this example demonstrates, in policy debates, research evidence has a technical role to inform the policy process, but research serving a political function involves validating policy core beliefs using narratives. Specifically, intermediary organizations embed research in policy narratives, which drives ideological change. In this way, PNA confirms that ideological coalitions can be distinguished based on how actors use research evidence. This is an important iteration of

research use theory, which typically induces the political effects of research, rather than deducing the political role of intermediary organizations

Example 3: Idea Brokers and the Common Core State Standards Reform

In this example, we interpret a network of reformers supporting the adoption of the Common Core State Standards (CCSS) as a discourse coalition. National in scope, the Common Core State Standards (CCSS) initiative was a state-led reform effort intended to structure the U.S. education system around a set of national standards (Rothman, 2011). Released in 2010, the CCSS were adopted by over 40 states and the District of Columbia amidst controversy over both the standards and assessments. The widespread uptake of the CCSS by most American states was facilitated by a coordinated reform network that included state governments, non-profits, and professional associations, to name a few. The CSSS are a standards-based reform, which aim to increase achievement and equity by aligning and optimizing the performance of educational systems around a set of academic content standards (O'Day & Smith, 1993; Smith & O'Day, 1991). Proponents of the CCSS envisioned a system that aligned school curriculum, instruction, assessment, and other resources around the CCSS, which would in turn allow states to share resources and reduce costs. The core belief of efficiency elevated narratives that focused on the economic costs and benefits of educational issue areas and the optimization of policy performance.

From early on, idea brokers played a key role in framing the policy narrative around the CCSS reforms. Starting around 2006, former governors James Hunt (North Carolina), Robert Wise (West Virginia), and the organizations they lead – the Hunt Institute and the Alliance for Excellent Education, respectively – started organizing with other influential leaders to push standards onto the national policy agenda (Kornhaber et al., 2017; McDonnell & Weatherford, 2013; Rothman, 2011). Hunt, Wise, and other idea brokers shared a common understanding of educational problems, which they believed stemmed from the U.S.'s historically fragmented and decentralized education system and its lack of coherent, high-quality national standards (Cohen & Moffitt, 2010). Idea brokers framed these problems differently depending on their audience. With the civil rights groups, they highlighted the states with low standards and large achievement gaps, while they emphasized the comparatively low achievement of American students amongst global competitors when talking to business groups (McDonnell & Weatherford, 2013, 2017). Idea brokers argued common standards addressed these problems and would yield universal readiness for college and a career in a competitive, modern workforce (Kornhaber et al., 2017).

Idea brokers framed the CCSS in two other important ways during the development of the standards. First, they wanted to avoid ideological battles characterized by the "curriculum wars" of the 1990s that had sunk prior national standards movements during the G.H.W. Bush and Clinton administrations. Consequently, they were careful to frame the CCSS initiative as a state-led effort and visibly distanced themselves and the reform network from the federal government. Second, idea brokers highlighted benefits gained from the economies of scale that would accompany the adoption of the CSSS, promoting a broader core belief of efficiency. Idea brokers expected the CCSS would facilitate instructional resource sharing and reduce the cost involved in producing tests, data systems, and curriculum materials (Kornhaber et al., 2017). Idea brokers were highly successful in using these arguments to garner support for CCSS reforms.

Like the previous example, the activities of the CCSS reform network highlights the important role of policy brokers. In short, PNA is effective for examining how policy brokers influence ideological change within discourse coalitions seeking to impose a new narrative. Here, however, we focus on individual idea brokers. As discussed earlier, idea brokers are

characterized as high-status nodes in elite policy networks and are associated with a range of advocacy activities. While past accounts of accounts of the CCSS reforms highlight the importance of influential actors, as policy entrepreneurs for example (e.g., Kornhaber et al., 2017), PNA locates such actors in a broader framework of ideological change. Conceptualized as idea brokers likes the development and improvement of reform ideas to policy uptake and institutional transformation.

Discussion and Conclusion

Our objective in this article has been to demonstrate the value of making full use of PNA concepts to understand ideological change in education policy. While previous studies of education policy networks have established a strong foundation in this area of the literature, collectively these works have only made use of a limited set of tools available to illuminate the processes by which market-based policies have attained normative status in education. Most notably, we have shown how observing network structures in terms of the location and influence of brokers, patterns of new actors and idea sets, and the changing network dynamics of ideological coalitions can shed light on the transformative power and influence of policy networks.

In addition to highlighting the under-utilized tools from PNA, we also sought to translate these tools into an explanatory framework for understanding ideological politics in education and the network structures through which these political forms take shape. This task involved mapping the ideological systems that structure ties within and between contemporary reform coalitions in education. Policy core beliefs produce coalitions that tend to juxtapose narratives of choice v. equality and efficiency v. professionalization. Emerging from these core beliefs are more specific issue areas around which coalitions form ties via resource exchange, information transmission and social status within the coalitions. It is within these contexts that idea brokers bridge seemingly disparate policy reforms toward convergence (e.g., the widespread adoption of market-based policies).

Drawing upon our framework, finally, we sought to illustrate the application of PNA methods for future research on ideological policy change. An important advantage for researchers conducting this work is that much of the necessary data can be gathered from online and archival sources, thus forgoing the costly need to collect data from organizations or political actors. For example, organizations express their support for policies and engage in policy debates publicly across multiple venues, such as websites, media outlets, and legislative hearings, while evidence of other collaborative action can be found in tax documents, government archives, online databases, and social media interactions. These approaches are already being used in existing educational policy studies that, for example, exploit 990 tax documents to link foundation funding to market-based reform movements (Ferrare & Reynolds, 2016; Ferrare & Setari, 2018; Reckhow, 2013; Reckhow & Snyder, 2014; Snyder & Reckhow, 2016).

There are, of course, challenges associated with relying on publicly available data. For instance, employing a social influence model requires collecting data on entrepreneurial behavior that is often anecdotal and sporadic, making it difficult to define and predict. Research using social media and digitized archival data may present one potential avenue that mitigates this burden (Supovitz, Daly, & del Freso, 2017). These records provide a wealth of behavioral information that can be processed into network data relatively quickly using modern software techniques. Care must be taken when using these strategies, however, especially as it relates to ethical concerns when using publicly available data that identifies individuals and organizations.

As a field of study, educational policy research is ripe for more rigorous applications of PNA. There is strong evidence that policy networks play a major role in setting educational agendas and shaping policy processes across multiple levels of government (Au & Ferrare, 2015). To date, the majority of empirical analyses have focused on using descriptive network statistics and visualizations to examine the effects of policy networks on educational policy change. Thanks to this work, we now have a robust research base to guide more advanced statistical analyses of policy networks in educational domains. Initial attempts have already begun to advance this agenda using techniques such as exponential random growth models (e.g., Galey-Horn et al., 2020), but substantial work remains.

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