

The Role of Place, Geography, and Geographic Information Systems in Educational Research

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Despite the strong relationship between geography and education policy, educational research tends to draw from other fields of inquiry such as economics, political science, and history. This special topics collection centers the usefulness of geography and place in educational policy research. The introduction explains the rationale for the collection and discusses the themes and articles in the collection. We conclude with a call for researchers, policy makers, and colleges of education to enhance their capacity in incorporating geographic thinking into educational policy research.

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Introduction

Allusions to geography abound in conversations of educational reform and policy. Research continues to establish links between educational equity, location, and perceptions of place (seen in scholarship such as Bell, 2009; Green, 2015; Hoglebe & Tate, 2012; Lubienski, Gulosino, & Weitzel, 2009; Lubienski & Lee, 2017; Morrison, Annamma, & Jackson, 2017). Developing knowledge based on geography and educational opportunity are urgent amidst the current educational reform agenda that seeks to be geographically agnostic, suggesting, for example, that school choice policies eliminate geographic restrictions in advancing educational opportunity. The purpose of this special topics collection is to bring together scholarship that explores the ways that geography and place relate to contemporary educational reform conversations. This set of articles expands topical knowledge about the relationship between geography and contemporary educational policy trends, while also introducing methodological strategies.

The fields of economics, political science, philosophy, history, and psychology have made a profound impact on how scholars understand educational policy issues. This special topics collection adds to this tradition by encapsulating how scholarship can draw from the field of human geography to answer educational policy research questions. The authors of the articles in this special topics collection use geographic and place-based methods to consider the

implications of space and place along a number of topics: segregation, school closures, school choice, and access issues related to political and geographic boundaries.

The special topics collection has three focal points. The first seeks to delve into the theoretical orientations of geographic thinking and educational policy. The second is to provide examples of methods in geography and educational policy research including geographic information systems (GIS) software, as well as other methods linked to spatial analysis emerging from both qualitative and quantitative orientations. The third is to show the diversity of geographic and spatial research topics, ranging from school choice to school boards.

Together, the articles in this special topics collection wrestle with a variety of geographic methods in answering questions related to educational opportunity and equity. They help push the field of educational research to consider how educational policy and research questions can be addressed through the use of spatial and geographic techniques. The goal is to build momentum for a greater use of the field of geography to influence the way scholars think about educational research. To achieve these goals, we begin by explaining each article and how it fits within one of the themes of the special topics collection. Then, we discuss future directions for the field, including what colleges of education and educational policy organizations can do to incorporate geographic thinking into their programs.



Space, Policy, and Theoretical Orientations

This section draws from two articles that offer conceptualizations of how to theorize space in educational research. While many of the articles included in the overall collection tend to use and reflect positivist and quantitative constructions of geography and GIS in educational policy research, the first two articles in the series offer critique and discussion on moving beyond the reliance of using geographic research in one-dimensional ways. The authors worry that this reliance on GIS as a neutral, scientific instrument has the potential to reconstruct existing power and structures in ways that reify the marginalization of certain students and citizens along the lines of race, class, and ability.

In their piece, “A Brief History of the Geography of Education Policy: Ongoing Conversations and Generative Tensions,” Yoon, Gulson, and Lubienski (2018) discuss the tendencies of scholars and policy makers to rely on positivist interpretations in the emerging field, which they term “geography of education policy.” The authors track the increasing use of geospatial approaches and discuss key studies through the last couple of decades. They urge the field to move beyond a singular focus on relying on GIS software and positivist ideologies and offer other areas of geographic research that allow for greater representation and participatory inclusion.

The strategies Yoon et al. (2018) promote include using qualitative, mixed-method, and participatory techniques to geographic research in educational policy, in addition to common GIS and quantitative methods. They urge the readers to foreground theoretical conceptualizations of space and power and constantly problematize how a study using geographic methods may perpetuate conditions of inequity, explaining to readers that “any use of GIS is not a neutral scientific instrument but rather a political act that needs to be problematized” (p. 6). They conclude “education policy scholarship should not be about choosing one type of evidence or methodology over another but rather about bringing different approaches forward and, at times, together to better understand our complex and persistent education problems” (p. 7). Not only do the authors explain and justify their arguments in the text but they also offer creative ideas for how others have designed studies within these domains, including how to collect and combine data that rely on multiple perspectives of place and space.

In “A Map Is More Than Just a Graph: Geospatial Educational Research and the Importance of Historical Context,” Kelly (2019) also argues about context, but focuses on history and time, asserting “spatial analysis is incomplete without a broad temporal frame.” Through the article, Kelly shows how boundaries of the past carried different meanings than boundaries of today and shows how “historicizing spatial data” allows researchers to expand the precision and accuracy beyond using a map as a stand-in for a basic, single time-point descriptive graph. Kelly depicts

school boundaries in California and concludes with compelling questions. This discussion reminds the readers of seemingly straightforward implications that too often are lost in policy discussions: The intent of the history of boundaries need to be included in the analysis of boundaries or the maps at focus lose sensibility and meaning.

There is a rich tradition in critical geography of drawing forth questions similar to those that Yoon et al. and Kelly bring forth. While much of this special topics collection focuses on the positivist methods these scholars critique, we include these two articles first to emphasize that while much of geographic research in education policy is quantitative and positivist, the voices of critical scholars have a strong place in this line of work. When using GIS and maps in educational policy research, one must remember that maps are so much more than fancy graphs. They carry with them histories of power, privilege, and oppression.

Methodological Diversity

The next set of articles capture the complexity involved with using GIS and geographic research techniques. This portion of the special topics collection shows the diversity of methods available to those seeking to include human geography and GIS systems in educational research, including mixed and non-GIS methods. These include descriptive mapping to enhance other types of analyses, the analytic tools of GIS and other spatial methods not reliant on GIS software.

In the article “Residential Segregation Across Metro St. Louis School Districts: Examining the Intersection of Two Spatial Dimensions,” Hoglebe and Tate (2019) show the power of using GIS as a visualization strategy to illuminate other quantitative methods. The authors create a quadrant from two measures, Isolation-Exposure and Evenness-Clustering, to capture the extent of how segregation and isolation are hyperlocal phenomena in St. Louis. The intersections and depictions of these spatial data show that even in hypothetically diverse areas of the city, isolation and segregation persist. The authors then overlay achievement data to show how the trends relate to patterns of segregation.

This study captures the elegance of using GIS in its most direct and functional way: Illuminating abstract measures on a map so that they become digestible for policy makers. This use of GIS is powerful in policy advocacy because it creates a data artifact that policy makers can easily see and use, helping researchers show policy makers how trends like segregation unfold in neighborhoods and how these affect academic opportunities for students.

In “Closed Schools, Open Markets: A Hot Spot Spatial Analysis of School Closures and Charter Openings in Detroit,” Green, Sánchez, and Castro (2019) help show how to use GIS in a way that captures a broader range of analytic possibilities. They use a “hot spot” analysis to examine the clustering (or lack thereof) of school openings and closures.

They link their analysis to different “policy eras” and show how the closure of traditional schools and the opening of charter schools occurred during policy eras and how they relate to community demographics.

The findings of the Green et al. piece show some patterns to openings and closures, and the analysis raises an additional set of questions likely only to be answered using methods such as mixed-methods GIS (Lubienski & Lee, 2017). For example, Green et al. found some inconsistencies in patterns, perhaps suggesting for other researchers to go to the hot spots they identified, conduct qualitative fieldwork, and ask why these patterns exist. Are they linked to racism and racial profiling? Housing policy? White flight? As the authors show, analytical techniques within the GIS software offer a rich starting point to identify and analyze a number of educational trends, especially as they relate to spatial access to schools.

In “Disability, Race, and the Geography of School Choice: Toward an Intersectional Analytical Framework,” Waitoller and Lubienski (2019) argue for researchers to merge “critical notions of space” with “critical notions of disability and race.” This addition captures nonpositivist ways to use GIS and geographic research to answer educational policy questions. Waitoller and Lubienski suggest that much of the GIS research in education focuses on space instead of place. With this argument, the authors build another layer onto Kelly’s call (in the earlier section) for historicizing place, and explain the need to understand the lived experience of participants through mixed-method approaches that center qualitative geographic research with participants. The article argues how traditional notions of GIS research fail to capture the lived experience of individuals as they relate to race and dis/ability.

Using a framework that considers Soja’s (1996) three conceptualizations of the dialectical relationships between conceptualizations of space and place, Waitoller and Lubienski provide recommendations for research methods at the end of their article. They suggest that a framework including critical geography and disability critical race studies should at the very minimum include longitudinal mixed-methods approaches that merge geographical analysis and in-depth interviews; participant selection that includes individuals who experience space and place at the intersection of disability and race; geolocation of interviews and artifact inclusion to integrate place and space; the use of maps to guide interviews, moving through space with participants; and research on the history of the location in which the interviews take place. These suggestions provide impetus to push the content of this special topics collection forward, while giving analytical tools to consider how we can build on the research presented here.

Topical Diversity

Finally, there is a simple and overarching point in all the manuscripts reviewed for this special topics collection:

There is no topic or area of educational research that should consider itself devoid from spatial analysis. This special topics collection gives a sampling of just a few areas that can be explored including preschool, school boards, school choice, and school segregation. However, we received nearly 100 high-quality submissions that covered topics ranging from school lunches to interactions on the playground. Space and education research capture a great number of possibilities, and we urge the field to continue exploring the spatial dynamics of every facet of educational institutions.

In “If You Offer It, Will They Come? Patterns of Application and Enrollment Behavior in a Universal Prekindergarten Context,” Shapiro, Martin, Weiland, and Unterman (2019) use a rigorous methodological analytical strategy to answer an important policy question: What are the sociodemographic characteristics of people who opt to not apply to Boston Public Schools prekindergarten programs? They use geographic information systems with a combination of administrative data and census data to compare student-, neighborhood-, and school-level characteristics. The article finds that “nonapplicants” are more likely to be people of color, low income, and dual language.

The article also demonstrates that applicants and nonapplicants are concentrated in different neighborhoods in Boston. Last, they find that applicants were more likely to attend kindergarten in schools with smaller kindergarten: prekindergarten seat ratios. This article shows that children and families who do not apply to pre-K in Boston Public Schools are disproportionately from marginalized racial and ethnic groups, speak languages other than English, and are low income. Given the policy goals of equity and universality of the pre-K program, this is concerning. And the article itself captures how geographic research can help understand access to new educational programs.

In “Mapping Inequalities in Local Political Representation: Evidence From Ohio School Boards,” Bartanen, Grissom, Joshi, and Meredith (2018) use a unique, researcher-collected data set to determine representation on school boards. The researchers collected addresses of candidates from school board races in Ohio and aligned them with American Community Survey data to determine the geographic distribution of school boards in relationship to census block demographics such as income, wealth, race, and other traits of census blocks. The analysis shows that school board members within school districts are more likely to come from wealthier, Whiter neighborhoods with higher levels of adult educational attainment. The authors show that citizens from more affluent areas are more likely to run (but not necessarily win) and consider the implications for representation and resources.

This study shows that spatial data can inform issues of politics in addition to policy. Political distribution of power is clearly linked to space, and the authors cleverly show how school zones, school districts, and neighborhoods have

different demographics. At times, the overlapping and delineations of boundaries relate to who has access to political power and decision making for school children. The authors raise the concern that a lack of political voice could lead to school boards not serving all their constituent students equally.

In “Racial Segregation in the Southern Schools, School Districts, and Counties Where Districts Have Seceded,” Taylor, Frankenberg, and Siegel-Hawley (2019) provide a detailed look at racial segregation and district secession by comparing school district boundaries and residential segregation in counties that experienced secession since 2000. Using National Center for Education Statistics’ Common Core of Data and census block group data, they are able to measure segregation of public school students over time. Of note, they find that secession is restructuring segregation, and that segregation is occurring because students are attending different school districts. In the analysis of the most recent data, the authors show that residents were increasingly segregated by race.

The authors provide a thorough discussion of how secession is undoing desegregation efforts rooted in the strategy of providing the one county, one school system jurisdiction. Given that, the article closes with an argument that policy makers should closely examine current and future secession efforts in light of their desegregation goals. Of course, this article also shows how to continue to analyze topics of school segregation through a geographic framework.

Limitations and Future Directions

This special topics collection is structured in ways to push the literature around theoretical, practical, and policy implications of using GIS and other geographic strategies in educational research. Collectively, the articles push the field to think about the limitations of GIS research and provide an important reminder that no data are neutral. In that light, artificial boundaries are established to solidify current power structures.

The field of educational research is trending toward innovative methodologies. Geographic approaches are increasingly used in school choice evaluations and political science research. We also see potential for scholarship using GIS around issues of teacher diversity, tax support for schools, and where alternative teacher programs locate. These areas have seen increasing policy interest and could benefit from spatial analysis.

We hope policy makers are inspired by this special topics collection to think through different ways of evaluating the education system. These articles push us to analyze educational policy in ways that reject historical artificial boundaries (i.e., school districts). Geographic thinking helps us understand the relationship between place and space in

unique ways and has the potential for helping us view systems in a new light. To that end, policy makers, too, should look for new ways of highlighting and exploring systemic inequities.

Finally, we encourage graduate education programs to provide methodological training to help emerging scholars better understand intersections between education and geography. This special topics collection highlights some of the possible uses of geographic methodologies including GIS within education, political science, and economics research. We encourage doctoral programs to provide opportunities for students to take courses in geographic theory and methodologies. There is also great collaborative potential for colleges of education to partner with geography departments to hire geographers of education. This special topics collection demonstrates the power of bringing these fields together.

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