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A Brief History of the Geography of Education Policy: Ongoing Conversations and Generative Tensions

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In this article, we map the expansion of geographic approaches in education policy scholarship in the last two decades. Our main objective is to trace key contributions, illuminating moments and turns from multiple epistemological perspectives within the scholarship of education policy and from the field of (human) geography. In doing so, we discuss how different types of methodological frameworks have developed, contributing to new and innovative geospatial methodologies in recent years. Following that, we note the extent to which the reassertion of critical perspectives into geospatial analyses has affected and could affect education policy and scholarship.

Keywords: *education policy, geographic information system (GIS), geography, mixed-methods research, participatory research, school choice*

In this article, we aim to map the emerging field of the geography of education policy, with particular attention to geospatial approaches, contributions, "companions," and critiques. Until recently, geography was not included in what were considered conventional approaches to education policy scholarship. For instance, the most recent *Handbook of Education Policy Research*, edited by Sykes, Schneider, Plank, and Ford (2009), did not include geography as one of the key fields that influenced education policy research, even though the editors noted that education policy scholarship has been shaped by multiple academic disciplines over the years. They mentioned, in particular, sociology, public policy studies, anthropology, and economics. In this article, we contend that geography has reemerged as a key aspect of education policy scholarship in the last decade. While geography was a key yet understated part of some urban and suburban education studies in the late 20th century (e.g., Grace, 1984; Wells & Crain, 1997), in the 21st century, it has become an important part of understanding education policy under conditions of globalization and mobility (e.g., Lewis, Sellar, & Lingard, 2015). Moreover, an increasing number of education policy researchers are drawing from geography to shed sociospatial light on a range of new and long-standing questions in education (cf. Taylor, 2009; Yoon & Lubienski, 2018). As a conceptual and methodological framework, geography has become indispensable in examining new areas of questions developed in the field, especially related to neighborhoods, school locations, teacher and student mobility, and others (Gulson, 2011; Lubienski & Dougherty, 2009; Yoon & Lubienski, 2017). In addition, critical geography has become instrumental to critiques of market forms in education that have involved the mobility of various actors (including students), new online technologies, and the changing spatialities of school provision, such as online charter schools (e.g., Cohen, 2017; Lipman, 2011).

The goal of this article is threefold. First, it traces the expanding boundaries of this emerging field through multiple theoretical and methodological forms of thinking and tinkering. Second, it delineates some of the key contributions, illuminating moments, and turns from multiple theoretical perspectives within educational policy scholarship and its continuing interactions with the field of geography. Finally, it documents insights into how different bodies of geo- and sociospatial approaches in education policy scholarship have addressed not only practical but epistemological questions that are associated with even deeper questions about power inequalities and transformational changes. In doing so, we focus on ongoing conversations and generative tensions in geographic approaches that would be instructive to future studies in education policy scholarship.

While none of us claim to know everything about the field or that we all agree on what constitutes this field, our (combined years of) explorations and examinations of educational policy scholarship through geographic lenses have overlapped closely with the multiple branches of this developing field. As such, we organized this article according to our respective and collaborative work and conversations over the years. We begin with the rise of geospatial approaches in education policy scholarship. This describes the use of geographic information systems (GISs) in understanding educational policy issues while identifying some of the limits of quantitative GIS approaches and suggesting its continuing usefulness in illuminating education policy issues. Following that, we identify GIS's counterpart—namely, qualitative geographic research in education policy—and discuss an emerging body of work that draws on mixed-methods approaches to understanding the geographic dimensions of educational policy from the perspective of both (post)positivistic and interpretivist scholarship. Finally, we discuss a parallel development of critical and poststructural work in human geography, elucidating how such work can be used to critique invisible yet effective power relationships that manifest in the use and abuse of GIS approaches in future research. As such, this article offers insights into new ways to transform spatial research and politics through participatory approaches in education policy scholarship. Also, it suggests new ways to explore the extent to which the reassertion of critical social perspectives on geospatial analysis could affect education policy implementation and reforms in the future.

The Rise of Geospatial Approaches

Many look to English doctor John Snow's use of mapping to track the deaths from a cholera outbreak in mid-19th-century London as one of the first modern applications of geographic analysis to social issues. Nevertheless, the use of geospatial analyses to education policy issues did not develop until much later (Lubienksi & Lee, 2017; Shah, 2016). Drawing on digital tools developed within the fields of geography and environmental science, in the last two decades, education researchers have more fully embraced GIS (GISs/science) approaches to address issues specific to social policy and schooling. Just as GIS was being leveraged in other social sciences, such as sociology and economics, and just as it was being utilized in business and marketing to offer descriptive insights to researchers, scholars in the field of education started using GIS tools to illuminate problems and patterns unique to their field.

Some of the earliest examples of the use of geospatial analyses in education come from the study of patterns around school choice policies. This area is particularly well suited to the use of geospatial tools because of the importance of school proximity and accessibility to parents (Burgess, Greaves, Vignoles, & Wilson, 2011; Marshall et al., 2010). Thus, examining school segregation around the growth of charter schools in Arizona, Cobb and Glass (1999) looked beyond traditional statistical approaches of measuring segregation that were unable to account for contextual differences and location relative to other schooling options. Using GIS, they examined school composition versus neighboring options as determined through mapping. Similarly, Saporito and Sohoni (2006) examined schools' racial composition relative to the racial composition of their attendance areas, finding that the addition of private and other choice options was associated with greater segregation in public schools. Examining England/Wales, Taylor (2002) utilized GIS to discern patterns of parents' school choices and competition among schools.

Subsequent studies adopted this approach, using GIS to examine issues such as schools' organizational behavior (Lubienski & Doherty, 2009). For example, Lubienski and colleagues were able to observe the admissions policies of schools in New Orleans relative to their local circumstances and the gerrymandering of self-determined attendance boundaries for oversubscribed schools in Auckland (Lubienski, Gulosino, & Weitzel, 2009; Lubienski, Lee, & Gordon, 2013). In both cases, analysis of location or attendance boundaries indicated racialized manipulation of school admissions to maintain the market advantage of more "desirable" schools in the local markets. This work has an affinity with the issue of gerrymandering in the U.S. context—specifically, how spatial ordering as a political action reinforces social class and racial segregation across social policy areas, including housing and education (Anyon, 2005; Sharkey, 2013). Indeed, a number of researchers have examined choice options and catchment areas through GIS to get a better picture of the geographic aspects of educational opportunity (Brock, 2013; Chumacero, Gómez, & Paredes, 2011; Edmark, Frölich, & Wondratschek, 2014; Gulosino & Lubienski, 2011; Hamnett & Butler, 2013; Harris, Johnston, & Burgess, 2007; Rehm & Filippova, 2008; Seppánen, 2003; Singleton, Longley, Allen, & O'Brien, 2011; Taylor, 2009; Yoshida, Kogure, & Ushijima, 2009). Other education scholars have used GIS to understand demographic distributions of teacher labor or housing markets related to education (Dougherty et al., 2009; Pitts & Reeves, 1999; Schultz, 2014).

While further advances in GIS software have allowed scholars access to more fine-tuned tools and thus more precise insights into schooling issues with geographic attributes, there have been a number of problems identified with the more traditional use of GIS that highlight its limitations. For instance, the recent mobility turn is one that is interesting for the use of GIS in education policy studies, particularly the ways in which GIS could be used to track mobility

and movement to schools. When this was raised in early work, such as Taylor (2007), the major concern was about technical capability. Taylor posited that

> using GIS to analyze journeys to school is the least developed of its technical capabilities. For example, it is possible to track and spatially reference the exact routes of individual children in travelling to school, using a GPS, to consider the spatial and temporal dimensions of those journeys. These could then be related to the decisions about school choice and to the use of, and attitudes towards, particular spaces by children. (p. 90)

A decade on, many of the technical capabilities are now readily part of mobile methods built into everyday smart phones. As such, the combination of qualitative methods such as the *walking interview* (Evans & Jones, 2011) can be combined with GPS to make space-time recordings that help us better understand how it is that students are understanding the mobility (or immobility) associated with school choice.

However, in general, mainstream GIS has been utilized in ways that produce more descriptive analyses. Focusing almost exclusively on quantitative data, the earlier waves of geospatial analyses in education were not well positioned to offer insights into causality but were nonetheless quite positivistic in their approach to research questions on social issues (Schuurman & Pratt, 2002). Moreover, as a largely descriptive accessory to other empirical methods, the initial uses of GIS were largely atheoretical in their framing and treatment of socioeducational issues, although we note that theoretically complex geospatial approaches are also possible and can build on GIS (e.g., Yoon, Lubienski, & Lee, 2018).

The critique of GIS, as it has been traditionally leveraged in education, came from geographers and critical theorists. Such scholars have noted the ostensibly positivistic view of the spatial world in GIS and its ideas of objective measurements and exclusions of the experiences of marginalized subjects. For instance, these critiques argue that the traditional GIS approach typically conceives of space in mathematical, Euclidian terms that can be represented on a map, with little sense of the lived experiences and on-the-ground perspectives of those being studied. Instead, they argue for a more critical approach that looks not simply at locations but at power relations (Allen, 2011; Lury, Parisi, & Trerranova, 2012). Their critique suggests the limitations of mapping quantitative data with GIS tools, which assume that "space" is immutable and measurable while ignoring the sense of "place" that people often ascribe to locations, distances, and so on (Tate, 2012; Waitoller & Annamma, 2017). Following that critique, qualitative and critical researchers began to explore alternative methodologies adapted to address these limitations inherent in GIS, including more mixed, democratic, and participatory methods, as we discuss later in this article.

Overall, geospatial approaches tend to be another form of representation that has adhered to a positivistic view of the spatial world, providing graphic illustrations of student enrollment patterns, teacher quality distribution, school closures, and school choice (in)equity. Nonetheless, we note that the use of GIS in education policy scholarship remains a viable quantitative research methodology that can illuminate the geospatial dimension of education policy scholarship. GIS as a visual and analytic method continues to offer insights into the geography of educational policy that cannot be easily discerned through other statistical or quantitative approaches or representations.

Qualitative Spatial Approaches

One of the problems with forms of representation through the geospatial approaches in education policy scholarship is precisely that they lack a sense, not of changes over time, but of how relationality is made—that is, the work that is necessary to identify and maintain connections (Jones, 2009). For example, there is extensive research identifying how school choice is made up of practices connected to student and parent identities, including aspects of race and class, and the ways in which these practices of choosing reinforce existing disparities in different neighborhood and regions. Indeed, Yoon's qualitative geographic research on education policy emerged from her earlier collaboration with Gulson (see Yoon & Gulson, 2010). During this collaborative work, Yoon was fascinated by a map that she encountered. It was a map of two elementary schools located in a gentrifying city neighborhood. Although only a few blocks apart, their student populations were strikingly different. In one, a majority of students were Aboriginal, low income, speakers of English as an additional language, racially marginalized, and living in multiplexes or social housing. In the other, a majority of students were from middle-class and mostly White families living in single-detached homes. This was indeed puzzling until Yoon and Gulson conducted a qualitative study using interviews with parents from the neighborhoods. In that study, they learned that while historically the two schools were connected—one as the main school and the other as its annex, or feeder, school—in the present, the two schools were viewed quite differently by parents because of the racial and ethnic characteristics of the students and because of the differences between the two schools' curricular and extracurricular programs and activities. The interviews were informative of why the two neighboring schools were so different, revealing the social, racial, spatial, and cultural divisions that existed in the "multicultural" urban neighborhoods. The findings illustrated the importance of conducting qualitative research to illuminate geographic divides as lived experiences that are not easy to discern when only GIS research is done.

Qualitative spatial approaches to education policy research have emerged in parallel to the quantitative geospatial approaches noted in the previous section. There are some overlaps in that realist approaches to critical scholarship have maintained epistemological positions related to positivism and postpositivism; however, the qualitative work on spatial approaches to policy studies in particular has been underpinned by the interpretivist approaches of feminist or poststructural perspectives. This includes education policy scholarship that has explored and illuminated the importance of spatial discourses and perceptions of place in school reforms, school closures, parental choices, and youths' experiences of school choice (André-Bechely, 2007; Bell, 2009; Gulson, 2006; Lipman, 2011; Reay, 2007; Yoon, 2015). Alongside this is work that has drawn on critical race theory to show how policy and race are inexorably connected (for overviews in education and geography, see Gulson, 2010; Price, 2010) and the work of disability scholars in education that has connected the physical organization of school spaces to the politics of disability (Armstrong, 2003; Waitoller & Super, 2017). Influenced by the geographic canons of Lefebvre, Massey, and Soja, a range of qualitative research, without any use of GIS, has shed light on how people perceive, experience, and co-construct places where education policies unfold. They have contributed productive disruptions of grand narratives, authoritative discourses, and all-encompassing explanations of who benefits from education reforms in particular local contexts and who is excluded from such benefits (Gulson & Symes, 2007).

One important contribution of qualitative geographic approaches has been a focus on the importance of historical geographies, which are stubbornly embedded in the spatial relations of urban life that affect schooling experiences and outcomes (André-Bechely, 2007). Education policy, in practice, is entangled with historically shaped geographic "artifacts of past and present" advantages and disadvantages (Pulido, 2000, cited in André-Bechely, 2007, p. 1361). Reay and Lucey (2003) noted how the education market in the United Kingdom accelerates the historically differentiated values of local areas as a form of "spatial fetishism." Those who live in wealthy neighborhoods experience profits of localization—that is, their neighborhoods and schools are seen as desirable versus other local areas. In contrast, those living in marginalized neighborhoods feel demonized, as their schools and neighborhoods become devalued. These spatialized experiences of education policy for youths and families are evident in the urban contexts of Canada as well (Yoon, 2015, 2017). Taken together, this body of research illuminates how education policy interacts closely with the spatial dynamics of urban (re)development, demographic changes in particular regions and cities, and concurrent marginalization (Yoon, 2011).

Other notable studies are the work of Butler and Robson (2003), Reay (2007), Gulson (2011), and Lipman (2008), who identify the links between education policy changes and urban space and conceptualize them as being based in the inner cities of major urban centers. In all these studies, we find that the urban housing market, urban renewal policies, and development of the education market are closely linked, especially in the increasingly gentrified urban cores of Chicago, London, Sydney, and Vancouver. Whether intentionally or not, education market policies provide a policy platform on which to produce and maintain an exclusive social and educational community of White middle-class families in gentrifying the inner-city neighborhoods and result in the displacement of long-term low-income residents and people of color (Gulson, 2011; Lipman, 2008). This body of work, additionally, illuminates the interplay of urban renewal, education policy, and identity formation.

These qualitative studies have some affinity with the geospatial studies of Lubienski and his colleagues (Gulosino & Lubienski, 2011; Lubienski & Dougherty, 2009). The qualitative studies noted here showed some of the processes that underpin the patterns and outcomes that quantitative GIS studies identified. In other words, the qualitative studies illustrated the whys and hows of unequal educational policy outcomes and options (available or not) across diverse and often segregated social and racial landscapes. Nonetheless, while this qualitative research has made important contributions to the field, there have been concerns that this research, which often draws on broadly discursive approaches, has not been taken seriously by policy makers. As such, there have been attempts to provide a different kind of legitimacy by combining qualitative research with quantitative policy research. There are no guarantees that this would result in policy impact, as the causal link between research and policy has long been varied, contentious, and tenuous (e.g., Elmore, 1979–1980; Lubienski, Scott, & DeBray, 2014; Wiseman, 2010); nonetheless, qualitative and quantitative approaches together may be able to illuminate in new ways how education policy interacts closely with the spatial dynamics of urban (re)development, demographic changes in particular regions and cities, and concurrent marginalization. In the next section, we discuss some recent work that tried to bring the qualitative and quantitative approaches together to benefit from the synergy between them.

Mixed-Methods GIS in Education Policy Research

There was a time when using mixed-methods geographic approaches was rare in education policy research. Things are changing. Mixed-methods geospatial approaches are making inroads into exploring increasingly complex questions in education policy research (Hogrebe & Tate, 2013; Jabbar, Sanchez, & Epstein, 2017; Jocson & Thorne-Wallington, 2013; Yoon & Lubienski, 2017). This research is bringing qualitative and quantitative data together intentionally and meaningfully. It is hoped that their complementary power

will be able to illuminate persistent challenges of spatial structures and dispositions that may be underpinning educational opportunities, experiences, and outcomes across formal and informal K–16 institutions of education. This type of research is still in its infancy, and to our knowledge, there are only few such studies, which we discuss in greater detail.

For instance, Yoon and Lubienski (2017) applied an exploratory, sequential, mixed-methods research design to understand how marginalized urban families choose schools in an urban school district. Qualitative research (i.e., interviews) was first used to understand why and how low-income, racially and culturally marginalized working-class families choose schools. Then they analyzed the student data collected by the local school district and the 2011 National Household Survey. The outcomes of the school choice patterns and the low-income families' spatial positions and dispositions were then brought together in a single study to provide a more comprehensive understanding of the relationship between geography and the school choice practices of disadvantaged social groups.

Similarly, in a study that sought to understand comprehensively how community college students' agency interacts with the constraints of geography in the forms of distance, location, and cost, Jabbar et al. (2017) applied a convergent mixed-methods research design. Their study used a survey that collected spatial data (i.e., georeferenced data with coordinates based on longitude and latitude) and nonspatial data (i.e., preferences, constraints, and other factors). They simultaneously examined the maps of community college students' desired choice sets with the reasons, values, and meanings that underpinned their transfer plans.

Another noteworthy mixed-methods study is that by Jocson and Torne-Wallington (2013), in which the authors used GIS to map all the literacy facilities in a particular area. They demonstrated how existing literacy-developing and literacy-enriching institutions tended to be located in places that were more convenient for meeting the needs and interests of the socially and economically advantaged over the disadvantaged. After that, undergraduate students conducted case studies of the literacy institutions. Also, through a public exhibit of student-produced poster maps, the authors were able to generate public conversations on what could be changed to distribute access to literacy development opportunities more evenly.

Although limited in number, these examples illustrate new ways of conducting education policy research. Epistemologically, they are grounded in critical, transformative, hybrid, pragmatic, and heterogeneous constructivism and other emergent research paradigms that emphasize knowing through multiple methodologies, as they are applied in critical and feminist human geography (Kwan, 2008, 2009; Mertens, 2010; Schuurman, 2010). They are built on the traditions that knowing and understanding our space and place emerge through multiple ways and sources; quantitative research and qualitative research are both critical to tapping into different and grounded knowledges and insights (Elwood, 2006, 2009). This thinking is also built on spatial theories that the (re)production of space and the (re) making of places are mutually constitutive through human interpretations and constructions (Lefebvre, 1991; Massey, 2005; Soja, 1996).

However, on a practical level, mixed-methods GIS research can pose challenges associated with collecting and analyzing multiple sources of data and maintaining methodological coherence. While researchers intend to make smooth transitions and connections between qualitative and quantitative data, such intentions may get derailed because of issues of data availability and access (e.g., school division data availability/permission) or because themes emerging from the qualitative data may go in directions other than what a researcher initially planned. The study's focus may diverge into different points rather than remaining coherent. Any change in one part of the research (e.g., the qualitative part of a study) may require a further change in another (e.g., the quantitative part of the study). This may raise some questions around methodological disconnection and disjointedness. Whether this is any more or less likely than in single-method research remains an open question. Additionally, doing mixed-methods research can be lengthier and costlier than single-method research, and it requires a broad range of research capacity and expertise.

Despite these challenges, we contend that it is these somewhat unsettling, incoherent, and dynamic processes and moments that can facilitate and create new ways of understanding the complexity of educational policy issues and problems. These processes require researchers and the readers of their work to become more aware of the possibilities and limits of their own ways of knowing, while requiring them to be more open-minded about understanding our complex world through multiple and distinct sources of data and insights. Education policy makers may thus place more value on more comprehensive evidence and insights that mixed-methods GIS research can offer as they seek information and insights into making decisions that affect an education system. It can provide an overview of an educational jurisdiction while allowing us to zoom in on one or two particular areas where more specific resources are required, as compared with other areas. We should also remain cognizant of the narrowing of policy scholarship where the idea of a map being an objective form of knowledge may allow for an approach to policy analysis that is located more in the lineage of the policy sciences than in the critical policy studies of the U.K. variant or the critical political economy policy studies of the United States (Webb & Gulson, 2015).

Nonetheless, the mixed-methods GIS approach has the potential to facilitate more participatory and democratic policy-making processes for community members and the public. It may do so by engaging them in informing GIS

map makers about what is happening in their neighborhoods and communities (Hogrebe & Tate, 2013). This research process can help with "blending local knowledge with 'expert' information" (p. 81). It would also help in the collection of bottom-up data, building on groups and communities in the geographic areas of different kinds and levels of resources necessary for policy changes that meet the needs of various communities.

Participatory GIS: Expertise and New Policy Actors

The continuing use of GIS nonetheless raises some questions related to power and mapping. GIS is primarily a mapping tool that has reconfigured power relationships in the education policy arena while introducing new (power) relationships and "knowledge elites." Maps as organizing tools for education policy are part of the lineage of governing organizations, systems, and cities via statistics (Osborne & Rose, 1999). The use of GIS is a use of statistics and an introduction of new types of policy experts into education. The introduction of GIS expertise into education policy research needs to be understood as being connected to and at times disjointed from developments around the history of mapping and the constitution of sociospatiality.

The history of mapping is connected to a lineage of colonialism and power that made cartography a necessarily political, while ostensibly neutral, constitution of the world (Massey, 2005); that is, there is a "historical complicity of mapping and GIS in military, colonial, racist, and discriminatory practices" (Crampton, 2008, p. 7). In the history of mapping as a colonial technology and in maps as part of education policy, there are relations of power/knowledge that are part of spatial representations. The same kind of mapping is part of education provision, such as catchment areas that show the designation of schools and space under which the logic may be connected to local government wards or transport routes—a logic that can also reinscribe forms of spatial exclusion (Dikeç, 2007). A key point/critique that we raise here regarding the use of GIS in education policy research is that any use of GIS is not a neutral scientific instrument but rather a political act that needs to be problematized.

As Mol (2002) noted, the practice of research methods "are not a way of opening a window on the world, but a way of interfering with it. They act, they mediate between an object and its representation" (p. 155). As Crampton (2010) identified in his discussion of the distinction between map making and cartography, "the understanding of what people thought they were doing with things they called maps has changed over time, as well as over space" (p. 3). Specifically, with the advent of digital mapping technologies, there are new forms of spatial media being produced, including the use of available platforms, such as Google Earth, which are introducing new types of "citizen" policy actors, where an alternative participatory politics is possible through GIS (Pickles, 1995).

As Dunn (2007) noted in an article on the possibilities of participatory GIS, including the overlap with feminist mixed-methods GIS, this can give credence to forms of local knowledge. If we think about this in relation to education-related local knowledge, education politics is often formalized through systemic take-ups within school boards or state-level bureaucracies. As such, while GIS is used in decision making, the inclusion of local knowledge may not necessarily change the prevailing power relations. As Aitken and Michel (1995, p. 17, cited by Dunn, 2007, p. 620) pointed out, "participation in the creation of GIS knowledge does not necessarily give any power to those involved in, and affected by, the decision-making." One of the drawbacks of GIS is its proprietary status, for while "GIS has long been central to spatial decision making and governance . . . owing to its high cost and complexity, a GIS digital divide exists along class and race lines" (Ghose & Welcenbach, 2018, p. 68). Additionally, the notion of expertise has been a key determinant of how GIS can be used in education policy matters, where the corporate platform is also tied to training and credentialing over 2-day courses. As such, in the legitimate use of GIS, "there are very real trends in nailing down knowledge into a coherent 'body' that can be mastered by experts. We'll know they are experts because they hold a certification" (Crampton, 2008, p. 5). This educational aspect is important, for as Ghose and Welcenbach (2018) noted,

> the design of proprietary GIS software packages may also not be appropriate for marginalized citizens and their grassroots organizations. Market forces shape the development of such software and its design and functionalities are best suited to the technically sophisticated needs of industry professionals trained in GIS. Staff members of grassroots groups are often not formally trained in GIS and tend to have different GIS needs than industry professionals. (p. 70)

We thus argue that in the future, this critical researcher reflexivity on methods should guide the type of GIS research, especially participatory GIS research, on education policy. This includes, building on the aforementioned link between mapping and power, the argument that maps are forms of data visualization that, like all representations in education policy, occlude as much as they reveal power relations (see Williamson, 2015).

Also, some lessons from human geography can be instructive for education policy researchers. It is worth exploring what types of participatory politics are already emerging around GIS. This includes, for instance, the idea of open-source sharing of geospatial software (Ghose & Welcenbach, 2018) and what is termed *public participation GIS*, in which the software and the practices and input using GIS are provided as part of community organizing projects.

For example, Ghose and Welcenbach (2018) outlined the use of public participation GIS by schools in Milwaukee, where students from areas of poverty were trained as citizen scientists by people working on community garden projects. These authors concluded, "While there is no technological fix towards resolving poverty, open GIS can bridge the GIS digital divide, enabling marginalized communities to formulate spatial strategies in their contestations against hunger, poverty, and deprivation" (p. 79).

Looking Ahead

In this article, we note ongoing conversations and generative tensions that have developed in the field—a field that we call the *geography of education policy*. We cite multiple strands of theoretical and methodological approaches within this field. These different approaches are now making headway in education policy scholarship, adding new topic areas and methodological innovations while trying to be politically relevant. Indeed, in the 2008 Presidential Address for the American Educational Research Association, William Tate, in launching his "geography of opportunity" study, drew on local students' stories in the local media about having too many liquor stores around the school. His GIS research was in some ways a follow-up on a media story that examined the patterns of spatial advantages and disadvantages on a larger scale, while calling for the city government's response. This is illustrative of connecting local concerns and knowledge with spatial research and then with civic engagement. Mixed-methods/participatory GIS research thus offers new possibilities. Nonetheless, as Tate (2008) contended, 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. We contend that a geography of education policy scholarship will continue with a variety of spatial research approaches in the future.

In this effort, we urge education policy scholars not to lose sight of the deeper conversations about the politics of methods, data, and representation. The use of GIS in education policy means that it may provide a way of opening up politics while running the risk of reinforcing existing policy rationalities, such as certain types of evidence being valorized. It will thus be interesting to see how the overlap of public participation or mixed-methods GIS can converge with more differentiated understandings of education policy as something that is not just top-down and removed from its pedestal (Vidovich, 2007).

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