

School Leaders' Sense-Making and Use of Equity-Related Data to Disrupt Patterns of Inequality

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Abstract

This qualitative phenomenological study explored how 19 school leaders in seven California comprehensive high schools were making sense of data and using data to transform their schools by closing achievement gap for historically underrepresented students. Data is a powerful tool in the hands of school leaders to transform patterns of inequality and bring about change in teaching practices, outreach to parents, and student-centered activities at the schools where school leaders are motivated by social justice. This study identified two different kinds of data – objective and subjective – that school leaders used. The researchers found that school leaders interpreted and used data in three different ways: as a diagnostic tool, as a critical road map, and as a reference point for crucial conversations. School leaders' interpretation and use of such data lead to transformative changes that promote equalization of educational opportunities for all students.

Keywords: Use of Equity-Related Data, Social Justice Leadership, Sense Making

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Introduction

School leaders and policymakers have come to value and embrace the use of data as a means to improve educational performance within districts, schools and for students.¹ The use of data has become increasingly more important in the fight to close the nation's well-documented achievement gap (Cooper & Chikwe, 2012; Heppen, Jones, Faria, Sawyer, Lewis, & Horwitz, 2012; Herman, Wardrip, Hall, & Chimino, 2012; Marsh, Bertrand, & Huguet, 2015). The use of data for school improvement has been growing at a rapid pace and in prominence in the American educational system since 1965 (Cooper & Davis, 2015; Ehren & Swanborn, 2012; Gottfried, Ikemoto, Orr, & Lemke, 2011). For the past several decades, state accountability systems and federal policies have mandated strategies to improve high priority school outcomes and diminish patterns of low performance and achievement. This focus has increased the emphasis on equity-related data and equity-related data usage at all levels of the educational system. Both federal and state accountability systems not only make data abundantly more available, but also have created a culture and atmosphere of accountability whereby schools are sanctioned or incentivized for progress in student achievement based on data. Districts have also expended significant resources on training personnel to use data in their practice (Datnow, Park, & Kennedy-Lewis, 2012; Means, Padilla, DeBarger, & Bakia, 2009). The production and use of data are rooted in the conviction that "if the right data are collected and analyzed, they will provide answers to key educational questions and inform actors' decisions, and better educational outcomes will follow" (Turner & Coburn, 2012, p.114).

A more recent example of the importance and utility of using data in school improvement efforts can be seen in President Barack Obama's, *Statewide Longitudinal Data System Grant* program and *Race to the Top* initiatives. These initiatives rewarded US states for their commitment to improving teacher effectiveness, accountability systems, reversing the outcomes of low-performing schools, and continuous improvement of academic assessment and achievement through the use of data (U.S. Department of Education, 2009). With this in mind, the goal of this study is to explore how school leaders make sense of, and use, equity-related data to transform their schools and promote issues of equity and access for all students. Equity-related data, for the purpose of this study, refers to 'school data' (such as graduation rates, college matriculation rates, advance placement and honors enrollment rates, absenteeism, truancy rate, discipline records, etc.) that illuminate unequal access to educational opportunities and disparity of outcomes for subgroups of students.

This qualitative phenomenological study explores how 19 self-identified social justice school leaders in seven California comprehensive high schools made sense of, and used, data to transform their schools by closing the achievement gap for historically underrepresented students. Data is a powerful tool in the hands of social justice school leaders to transform patterns of inequality and bring about fundamental change in the core functions of the educational enterprise—teaching and learning. Yet, the simple existence of data, even when analyzed, does not necessarily produce school improvement or lead to closing the achievement gaps (Marsh Pane, & Hamilton, 2006). Social justice school leaders play a substantive role in valuing, interpreting and using equity-related data to challenge school norms, policies, and practices as a means for improving learning outcomes. According to the Wallace Foundation, school leadership

¹ The term school leaders is used broadly in this study to designate those who hold position of authority at the school level—principals, counselors, department heads, deans of discipline, teacher leaders, etc.—or make decisions that impact the school. All the teachers in this study hold administrative positions and are also referred to as school leaders.

is second only to teacher quality in terms of school-related factors that influence student learning (Leithwood, Seashore Louis, Anderson, & Wahlstrom, 2005). There is increasing emphasis on how school leaders can use data for equity purposes (Diamond & Spillane, 2004; Skrla, et al., 2009). School leaders have been described as frontline civil rights workers who, in the long run, struggle to increase equity and access for all students (Moses & Cobb, 2002). School leaders are expected to be policy mediators and use equity-related data in thoughtful and transformative ways to disrupt and change the patterns of inequality at their schools. Freire (1990) proposed that the purpose of our educational system is to make bold possibilities happen for disenfranchised students. He stated that it is the work—in fact, the duty—of public education to end the oppression of poorly performing students. Therefore, school leaders in urban high schools have a unique and challenging responsibility to transform their schools through the use of equity-related data and social justice mindscapes.

While many scholars have engaged in vigorous debate about the role of accountability systems and policy development as a result of data, few have addressed the critical role that school leaders play in interpreting and making sense of equity-related data. (Diamond & Spillane, 2004). Scholars who support the use of data for school improvement efforts and equity work, rarely explore how school leaders interpret and use data in the pursuit of equity. Equity-related data can be interpreted and used differently by different school leaders based on their social justice mindscapes. Thus, the aim of this study is to explore the unique and complex process that self-identified social justice school leaders engage in to interpret and use data in their pursuit of social justice and educational equity. The following research question guides this study: How do social justice school leaders conceptualize the role of data in advancing issues of social justice and equity?

Mindscapes and the Use of Data

One of the underlying assumptions of previous work in this area is that school leaders are value neutral in their use of data for school reform (Datnow et al., 2007; Halverson, Grigg, Prichett, & Thomas, 2007; Kerr, Marsh, Ikemoto, & Barney, 2006; Wayman, Stringfield, & Yakimowski, 2004). In contrast, the authors of this study contend that school leaders, like all people, do not make sense of data devoid of personal bias and preconceived ideological notions of how to understand and interpret such data. They approach the interpretation of data with an ideological scheme, frame of reference, or mindscape that has been shaped by training, beliefs, values, cultural norms, past experience, and lessons learned. Thus, they come to data with what Sergiovanni (1992) calls the heart and head of leadership – “a set of beliefs and values, with mindscapes or theories of practice” (p. 7). Mindscapes, meaning-making schemes, concepts or perspectives about how the world works are often personally held and influence much of what leaders do. Bourdieu (1984) captures this when he says that the *voir* (the capacity to see) is only a function of the *savoir* (having a conception or knowledge). In other words, our capacity to make sense of and use equity-related data is determined by our mindscapes. The belief system of school leaders therefore helps create meaning and provides a basis for decisions. “What we do makes sense if it matches our mindscapes. And different mindscapes represent different realities: what makes sense with one mindscape may not make sense with another. Different realities can lead people to behave quite differently” (Sergiovanni, 1992, p. 8). Some people might say that if this is so, then there is no objective reality. Rory, however, would argue differently (cited in Benjamin, 1990). He suggests that the world of reality largely exists independent of our beliefs, but the truth about reality does not; rather, truth for each of us is a function of the lens with which we see and describe reality. In other words, our mindscapes determine what is true about any particular reality.

Theoretical Considerations

To explore the practices of social justice school leaders and how they make sense of, and use, equity-related data to break the patterns of inequality at their schools, this study is guided by three bodies of literature: critical social justice theory (Brown, 2006; Sturman, 1997), equity audit theory (Skrla, et al., 2009), and political race theory (Guinier & Torres, 2002). Critical theory gives individuals who are social change agents a critical perspective on the normally taken for granted social issues and dispels illusions of ideology. Critical theory provides critical guidance to human action in a way that is inherently emancipatory and supplies the knowledge needed for social transformation (Dictionary of Critical Theory, 2001).

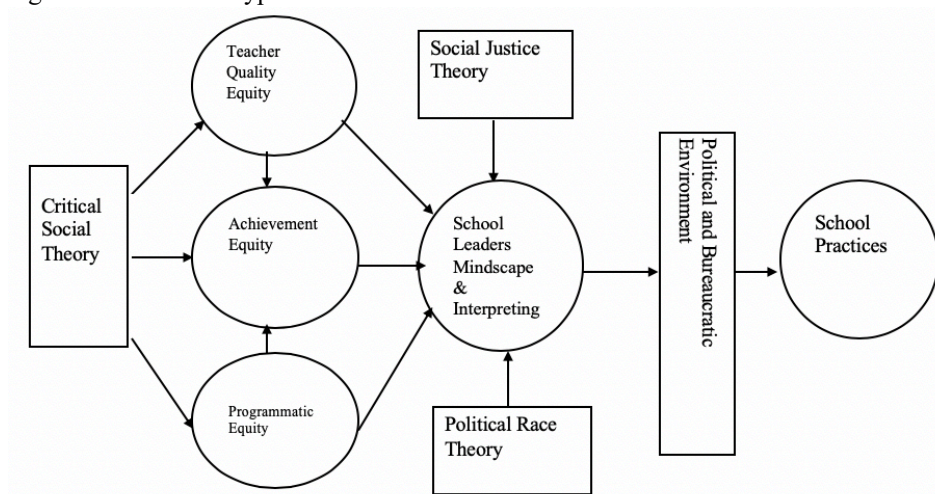
A main tenet of critical social theory holds that race is a tool of inequity. To therefore dissect and diagnose the racial politics in this study, political race theory. Guinier and Torres (2002) state that “political race theory illustrates how the lived experience of race in America continues to serve an important function in the construction of individual selves as well as in the construction of social policy” (p.12). Lived experience of race is an attempt to capture how race impacts the daily interactions people have with others, as well as with the structures and institutions of the broader society such as schools, prisons, banks and churches. Political race theory, in essence, is an attempt to illuminate how race is linked to power and resource allocation. More specifically, a political race framework situates the actions of school leaders within the local, state and national discourse about race to illuminate how their interpretation and use of equity-related data is informed by their internalized and underlying beliefs regarding students’ opportunities and achievements. This approach helps shed light on the unexamined assumptions, beliefs, and values of school leaders and highlights the power they have in influencing issues of race inequity in schools. Political race theory, therefore, helps to explore the political nature of how school leaders are confronted with cultural norms regarding race and racism and how those ideologies shape their interpretations and use of equity-related data. The authors argue that school leaders’ mindsets about social justice and race shape the way they think about inequality and how they can use data to provide transformative leadership.

An equity audit framework is also employed in this research. Equity audits are tools that can be used to identify embedded and internal patterns of inequities in schools. Skrla et al. (2009) argue that equity strategies should be planned and systemic, as well as focused on the core tools of the teaching and learning process. In each school in this study, equity audits were used to identify embedded patterns of inequities. The three major domains identified for the equity audits were: teacher quality equity, programmatic equity and achievement equity.

In combination, these three theories – critical social justice theory, equity audit theory, and political race theory – provide the theoretical lens to explore the actions of school leaders around equity-related data. They offer a framework for determining how to gain access to and examine the mindscapes of school leaders as they make sense of equity-related data and reveal their theoretical assumptions that undergird their actions. The context of the political and bureaucratic environment at the national, state and local levels is assumed to impact their interpretation and use of such data. The conceptual framework outlined in Figure 1 expresses the layered and embedded nature of the theoretical perspectives that frame and influence social justice school leaders’ values, beliefs, opinions, motives, desires, goals and ultimately their actions.

This investigation employs a qualitative phenomenological approach to explore how school leaders in seven comprehensive urban high schools in California were both making sense of, and using, data to disrupt patterns of inequality on their school campuses. Merriam (2009) states that qualitative research is interested in uncovering and understanding the meaning of a phenomenon; including, how people construct their worlds, interpret their experiences and the meaning they ascribe to those experiences. This research is critical for exploring the phenomenon of sense making of social justice school leaders regarding equity-related data.

Figure 1. Mediation-Type Model



Methods

As qualitative research, this study aims to achieve adequacy of interpretation rather than prediction and control as might be characteristic of quantitative research (Merriam, 2009). This study emphasizes the recurring features of phenomenological research by capturing the phenomenon from the perspective of the local actors through a process of deep attentiveness, temporarily suspending prior beliefs and judgments regarding the phenomenon (epoché) in order to objectively collect and analyze data, phenomenological reduction, horizontalization and imaginative variation. A qualitative phenomenological approach is the best way to explore the phenomenon of how school leaders in urban school contexts make sense of, and use, equity-related data to transform their schools. It provides the authors with the flexibility to explore, in-depth, this phenomenon across multiple school sites (Yin, 2014). Using school leaders' sense-making and use of data as the unit of analysis, this study investigates social justice school leaders' interpretation and use of data to transform patterns of inequality, their behaviors, actions and inactions around data that speak to unequal distribution of resources. This approach allows greater understanding of how school leaders' perceptions are formed and get played out, as well as the significance this plays in their interpretation and use of data.

Data collection strategies for this qualitative phenomenological investigation involved interviews with school leaders, observation, shadowing, collection of documents and archival records. Because of the nature of qualitative research, the researchers were the primary instrument for data collection and analysis. Through in-depth interviewing, the phenomenological method explored the participants lived experiences and gained insight into how an individual's mindscape shaped his or her behaviors and beliefs.

The principals at each of the seven schools facilitated access and entry into the schools. Snowball or network sampling was used to identify additional school leaders at each school site who were invited to participate in the study (Rogers & Blumenreich, 2013). Each principal identified other school leaders who were engaged in the use of data for equity-minded reform. The selected school leaders had to have: (a) official responsibility around data and data-driven decisions and practices and (b) at least two years of experience at the school. Ideally, the sample of participants at each school site included at least three administrators and two teacher leaders. A diverse selection of participants ensured a broad understanding, from multiple perspectives, of how school leaders made data-driven decisions at each of the schools.

Study Participants

This research sought to investigate how social justice school leaders in seven California comprehensive urban high schools in Southern California both make sense of, and use, equity-related data to disrupt the patterns of inequality at their schools. The schools were located in several of the largest school districts across the state and nation. Specifically, this study focused on the experiences of school leaders leading in schools that have a high population of students of color and were experiencing equity-minded reforms.² Since the greater Los Angeles area is home to the largest population of students of color, and is host to the second largest school district in the country, four schools in the Los Angeles area were selected to participate in this study along with three schools in San Diego, the second largest school district in California. The seven schools have a demographic mix of students. Four of the schools are targeted low-income and students of color; the other three schools are economically and racially diverse. The sampling of schools on both ends of the achievement and economic continuum (i.e., program improvement and high achieving, low-income and affluent) is purposeful to discover to what degree these contexts impact how school leaders make sense of data. For a brief description of the schools and the school leaders which participated in the study see Tables 1 through 3.

² Students of color in this study are limited only to African American and Latino students.

Table 1: Demographic Information of Selected Schools

School	Bell Flower	Morning Rose High	Seaside High	Mountain High	Olympus High	Knot High	Trojan High
Enrollment	2,771	2,235	2,668	1,808	2,359	1,850	2,456
African American	10%	2%	17%	74%	37%	9%	18%
Latino	68%	11%	54%	15%	54%	33%	33%
White	13%	49%	7%	8%	2%	37%	4%
Asian	7%	33%	19%	2%	5%	11%	2%
Free & Reduced Cost Lunch	54%	8%	73%	53%	77%	46%	65%
Neighborhood Unemployment rate	10.7%	4.6%	9.9%	11.3%	23.6%	2.9%	12.5%
Neighborhood affluence rate (% of neighborhood families with income above \$125,000)	21%	29%	23%	34%	2%	22%	8%
School is in Program Improvement during study	Yes	No	Yes	No	Yes	No	Yes
% of English Language Learners	16%	8%	19%	4%	25%	8%	17%

Table 2: Profile of the 19 School Leaders

Name of the school leader (Pseudonym)	Name of the High School (Pseudonym)	Principal	Assistant principal	Departmental head	Teacher	Dean of discipline	Number of years at the school	Years of experience in school	Black	White	Hispanic	Male	Female
1. Johnson	Bell Flower				X	5	8	X			X		
2. Hernandez	Bell Flower	X				3	10				X		X
3. Rodriguez	Bell Flower				X	10	16				X	X	
4. Vincent	Bell Flower		X		X	7	12				X	X	
5. William	Morning Rose	X				7	14		X		X		
6. Samson	Morning Rose			X	X	11	11		X		X		
7. Jackson	Morning Rose				X	7	10		X		X		
8. Robinson	Morning Rose			X	X	15	20		X		X		
9. Evans	Seaside	X				10	15				X	X	
10. Burnett	Seaside			X	X	7	17				X		
11. Ortiz	Seaside		X		X	14	33				X	X	
12. Water	Trojan		X		X	10	13		X				X
13. Benson	Trojan	X				9	14	X			X		
14. Clarence	Mountain	X				2	12				X	X	
15. Wright	Mountain		X		X	8	14	X			X		
16. Kayla	Olympus	X				3	10		X				X
17. Sandra	Olympus		X		X	22	22		X				X
18. Rutenberg	Knot		X		X	5	7		X		X		
19. Coleman	Knot	X				2	24		X		X		

Table 3: Enrollment, Graduation, Dropout, and Standardized Testing Results³⁴⁵

School	Bell Flower High	Morning Rose High	Seaside High	Mountain High	Olympus High	Knot High	Trojan High
Number of Graduates		492	470	371	251	378	447
Graduation with UC/CSU ²							
Afr. A	25: 12	13: 6	87: 23	274: 93	126: 19	32: 3	65: 6
Latino	283: 120	41: 15	246: 101	47: 26	98: 15	101: 20	121: 27
Asian							
White	43: 33 74: 51	172: 139 237: 116	90: 68 29: 15	5: 4 35: 19	15: 6 6: 1	38: 17 159: 68	11: 2 17: 5
Enrollment and Dropout ³							
Afr. A	265/20	37/0	446/17	1,343/109	861/54	164/1	450/27
Latino	1,880/132	239/1	1,444/59	263/24	1,273/136	607/15	801/60
Asian	187/3	732/1	501/9	32/1	107/2	212/5	45/5
White	356/14	1,086/1	179/9	139/5	47/8	682/19	96/10
Enrollment 12 th grade/SAT exam takers 2008-09	492 232	557 333	472 215	363 202	347 108	403 242	486 189
Enrollment 12 th grade/ACT exam takers 2008-09	492 102	557 138	472 48	363 98	347 38	403 102	486 41

Data Collection

Over a two-year period, all seven schools were visited a minimum of five times to conduct focus groups interviews, individual interviews, observations of faculty meetings and professional development sessions, and to shadow the principal. A total of 38 days of onsite data collection were recorded. Because the major goal of the study was to explore how school leaders made sense of, and used, equity-related data; prior to the onsite interviews, equity audits of the schools were conducted to obtain equity-related data. Equity audits were tools school administrators use to identify embedded and internal patterns of inequities at their schools (Skrla et al., 2009). The equity data are then analyzed and used as contextual background information to explore how school leaders in the seven school sites were making sense of and using data in the three areas of the equity audit — achievement equity, teacher quality equity, and programmatic equity) — to disrupt the patterns of inequality at their schools.

There were two rounds of semi-structured interviews. The first set of interviews began December 2010 and focused on capturing the institutional mindscape around data and data usage at each school. The interview questions were drawn from the equity audits

³ Data derived from CDE website (www.cde.ca.gov).

⁴ Gives total number of graduates and graduates with UC/CSU courses. In each racial group, the first number refers to total graduates and second refers to those with UC/CSU required courses.

⁵ Enrollment and Dropout (9 – 12th grade). In each racial group, the first number refers to enrollment while the other refers to the dropout of the school year.

and the theoretical model guiding this research. Each interview with a school leader lasted about 60 to 90 minutes. The second round of semi-structured interviews, conducted in early 2012, focused on the factors that influence school leaders' mindscapes and how their practices are influenced by their mindscapes. The school leaders' personal, professional, organizational and institutional contexts were also explored. This depth of exploration aided in understanding the leaders' own history and backgrounds, beliefs, work history, role identities, and group affiliations that figured prominently in their framing and interpretation of issues and events around data that speak of inequality in student opportunity. The researchers assumed that many organizational and institutional attributes of schools provide school leaders with ideological, social, and political cues that signify patterns or norms that help them filter information and experiences, and guide their actions and behaviors (Evans, 2007).

All interviews were audio recorded and transcribed verbatim and saved in e-file formats and printed for analysis. Interviews were supplemented with targeted field notes that described in detail observations of faculty and team dynamics during leadership team meetings, and classroom observations. Additionally, paper artifacts were reviewed, copied, reorganized into tables and analyzed.

Data Analysis

Because this research employs a qualitative phenomenological approach for data collection, the analysis involved a combination of Moustakas' (1994) four main phenomenological data analysis and hermeneutic style interpretative approaches to produce a robust set of findings and recommendations. The data were organized and reduced so that ideas, themes, units, patterns and embedded structures began to emerge (LeCompte & Ludwig, 2013). The method of organization and reduction of data included reorganizing and rewriting textual data from the interviews that gave a comprehensive, meaningful and authentic narrative. The reorganized and rewritten texts of interviews, field notes and observations were uploaded into a qualitative software program, Atlas ti. Data were cross-referenced with the information provided by the school leaders.

Data were analyzed on three different levels according to Miles, Huberman, & Saldaña (2020). At the first level of analysis, the data were categorized according to the five broad constructs. For the purposes of this study, we operationalized our definition of mindset as a combination of the following: beliefs of the school leaders (core principles, ethical commitment, social justice, beliefs about student learning and different racial groups) and core values (social, religious, cultural and political). The other two constructs used to analyze the data were social background (race, family history, socio-economic status) and training and past experience (High school, college and graduate school, technical knowledge, facility with data). We were also open to other themes that emerged.

The second level of analysis involved identifying emergent themes within groups of participants (e.g., by principals, assistant principals, deans of discipline, departmental heads, etc.). For the third level of analysis, a cross-case analysis, or cross-case comparison, was conducted. This third level of analysis involved a laser focus on the data to get a better understanding of the actions and their purposes with the lens of critical social theory and political race theory. Matrices were developed to help visualize the data and draw substantive comparisons. Additionally, the cross-case comparison design aided in identifying common themes across the seven schools and capturing the essence of the phenomenon of sense making and use of data by school leaders.

Results

Guiding this study was the question of how school leaders conceptualize the role of data in the fight for equity and social justice. We received a variety of answers to this question, which suggest, unsurprisingly, that there is a multiplicity of ways school leaders perceive and make sense of data.

It was clear from our analyses that these school leaders used their conceptions of equity as the guide to make sense of their data. Although all the school leaders involved in this study were self-identified social justice leaders, they had a multiplicity of ways they conceptualized the construct of equity: equality, equal opportunity, fairness and sameness. Participants reported that their understanding of equity and social justice, and ultimately their commitment to advocate for equal educational opportunities for their students, was a hybrid of their upbringing, race, personal beliefs and values for education, the social environment they grew up in, the schools they attended, and their professional training and experiences. For instance, Ms. Hernandez, the principal of Bell Flower, was raised by immigrant parents, who, because they were uneducated, worked long hours for minimal pay in order to put food on the table. She stated: “My parents...I saw them work very hard, long hours, and hard labor. My mother was a seamstress in a factory and my father was a plant repairman, and they always instilled in me that I needed to go to school so that I can have a better life.” Growing up in south central Los Angeles and seeing how unfair the educational system can sometimes be for the students of color or “people like me” as she put it, she was inspired to get a good education and “change things around.” It was this socialization and getting her education from USC that provided the mindscape for Ms. Hernandez to look at issues of inequality at her school. She valued and understood the importance of personal education as something that could give her and others leverage in society. Consequently, she fights for her students to have the same opportunity. She perceives social justice in line with issues of civil rights.

Looking at data and making leadership decisions that acknowledge disparities in learning opportunities for students was a common theme across the leaders in this study. Analysis of our findings revealed three significant ways that school leaders both made sense of and used data to change the patterns of inequality at their schools. They used data as 1) a diagnostic tool, 2) a reference point for crucial conversation and 3) a critical roadmap. The findings illuminate the complexity and the nuanced ways in which the school leaders in large urban high schools both made sense of and used data to make important leadership and educational decisions and changes at their schools. The social justice mindscape or mental optics was the leading factor that influenced school leaders sense making and use of data for equity purposes. While the data showed the equity gaps in their schools, it was their social justice mindscape that provided the lens through which they interpreted the data and that reminded them of their civil duty and moral obligation to challenge the status quo.

By invoking a social justice mindscape, these school leaders situated their approach to data collection, analysis and interpretation with an awareness of, and commitment to, the historical struggle against race and class oppression. By employing a social justice framework, these school leaders were able to examine school policies and practices with an eye on who in school benefits from them and how those benefits were tied to inequalities associated with race, social class, language, gender, and other social categories. In this way, a social justice mindscape was being used as a tool for looking at why and how schools are unjust for some students. It was also being used as a tool for imagining the role educators could play in reconstructing schools where all students are valued, acknowledged for who they are and are receiving a high-quality education.

Data as a Diagnostic Tool

The school leaders perceived and used data as a diagnostic tool to identify issues that needed to be addressed in order to create a better educational environment for their students. Data as a diagnostic tool points to something larger, which sometimes may not be entirely articulated in words. Lani Guinier and Gerald Torres (2002), in *The Miner's Canary*, used the powerful imagery of a canary as a diagnostic tool. The reference is to the use of canaries to signal toxicity in coalmines. If a canary died while deep in the mine, miners knew that the air would not sustain them. Using a similar metaphor, equity-related data for many of the school leaders in this study signaled the toxicity of the educational system in which they worked. School leaders employed a social justice mindscape to identify persistent problems, investigate barriers to equality in learning opportunities, and discovered strategies for student success. Equally important, data were also used to identify structural, organizational and personnel issues for the faculty.

We turn to an exploration of the three different ways that these school leaders made sense of data and used it at their schools. In the course of the interview with Ms. Hernandez, the school principal of Bell Flower High School, she pointed to the diagnostic function of data.

Well, data really is the guide. They can provide opportunity for advancements, for intervention, for attention, for resources. You know, you use that data to build your reason. I always make the comparison between data and lab results. You know, if I go to the doctor and they make me give blood so that they can check my blood sugar, or my cholesterol or my [...], you know, they give me the medicine that I will need if I have a condition.

Just as medical doctors use medical equipment to diagnose medical problems, in the same way, equity-related data was perceived as a diagnostic tool the school leaders used to identify problems in the educational process and to develop appropriate and effective solutions to address these problems. Many of the school leaders talked about how their use of data was diagnostic in the sense that it allowed them to systematically begin to identify the root causes of student failures in the educational enterprise, particularly for students of color. Speaking with Mr. Samson, one of the teacher leaders at Morning Rose, he pointed out that the critical role of data was to help identify students and groups that might need more support.

...the way we derive data is through surveys, polls, and assessment and that assessment, when broken down in specific ways, can identify ethnic groups we are not addressing correctly: language groups, ELD groups that we are not addressing correctly. That data has the capacity to help affect male versus female. I mean, breaking down the data in certain specific ways will allow you to identify groups within the campus that could then be addressed specifically that might not otherwise have been seen.

The school leaders were aware of the diagnostic ability of data and many of them use it frequently. They believe that data is able to give them a better understanding of their students and their abilities and, therefore, puts them in a better position of responding more efficiently to their students' needs. The school leaders mentioned above leveraged on their social justice mindscapes in order to have a better understanding of the gaps that existed among the subgroups of students that the data identified. For instance, Ms. Hernandez, came from a family background that valued education and made it a priority. She grew up in South Central of Los Angeles and saw firsthand how the students of color were disenfranchised by the educational system and knowing how important education can be to move them out of that socioeconomic class, she worked

hard to level the playing field for all students. Here's what she said about her love for education and the value it holds for her: "I always liked school, and I knew that through education I can have more opportunities in life, and it took one teacher to tell me I was college material, to really believe it. Because somebody told me, 'hey you are going to go to college one day' and that changed my life." All this formed her social justice mindscape as she looked at the data that speaks of gaps in students' achievement. Similarly, Mr. Samson, from Morning Rose High School, grew up from a background where education was always valued as a means of social mobility. His parents are whites and have instilled in him the need to fight for social justice and the rights of everyone. This background has helped to shape his mindscape in looking at data and advocating for students who are marginalized by the system.

Data as a diagnostic tool serves as a call to action. The diagnostic capacity of data impacts both classroom curriculum and teacher pedagogy. For many classroom educators, access to data provides the details necessary to appropriately assess where their students are. The principal of Bell Flower High School, Ms. Hernandez, used data as a diagnostic tool to discover the disparity in the AP and honors class enrollments. Looking at the data, she discovered that while the school was over 67% Hispanic, less than 10% of the Hispanic students were enrolled in the advanced classes. Enrollment data facilitated for Ms. Hernandez recognition that there was an imbalance in the school demographic and enrollment in AP and honors classes. Her investigation into this situation revealed the many restrictions and requirements that made it difficult for certain groups of students to enroll in the most rigorous course of study. Here is what she said regarding using data as a diagnostic tool:

So, in the big picture of social justice, data does play a part. How do you help a kid if you don't know what their issue is? I think in the past there have been a lot of educators who know they need to help the kid, but they just don't know where ... where do I help them? They really have sincere interest in helping the kids, but in the past you kind of rely on your own test. I think now the district has provided a lot more assessments to be able to say, "Ok, I know, as the social studies teacher, my students didn't get this standard, so I may have to re-teach or retest them, so I can be sure I cover the standards, so they do learn the content and do well in their CST."

Similarly, Mr. Williams, the principal of Morning Rose School, used data as a diagnostic tool to discover the achievement gaps between the different subgroups at his school. Looking at the data, he became aware of the wide gap between the highest and the lowest academically performing groups at the school. The lowest performing groups were the African American and Hispanic students and the highest performing groups were the Asians with Whites falling in the middle. There were two gaps, which, for him, was surprising and unexpected. According to Mr. Williams, if you select any public urban high school in America, the Whites and Asians are at the top of the academic hierarchy and the Blacks and Latinos are at the bottom. But at his school, the data revealed the White student population, which made up 40% of the student body, was underperforming in the middle. The data revealed that Morning Rose High School had two achievement gaps to address: the underperforming White students and the typically underperforming Students of Color. According to Mr. Williams, equity-related data challenges a person to care about what they do. He suggested that a person cannot become aware of the type of disparities identified in his school's data and not feel concerned and look for a solution. He considered the educational disparities at his school a matter of social justice that called for action.

Ok, so now ... so you can't look at the data and not recognize the gaps

between groups of people. That's why you have to disaggregate the data. ...and so, when you look at the data it compels you to focus on the students not doing as well as other students; that is social justice. So, you know, when you are talking about this achievement gap and what you could do to close the achievement gap, that whole language, that whole concept, is based on this idea that all people should be learning at a comparable level if you are succeeding. That's probably your definition of social justice. So, data leads you right to it.

This discovery of the achievement gaps between the subgroups at the school compelled Mr. Williams to begin to address the issue by opening access to AP and honors courses to all students who were motivated to pursue them. Without this type of equity-related data available, disparities in educational opportunities and outcomes go unnoticed. Data served as an important diagnostic tool that helped school leaders in this study to identify problems, but more importantly, it motivated them to take action in their respective institutions. Their social justice mindscapes were at the core of their feeling compelled to restructure the system so equal opportunities might be provided for all students. Again, their background shaped much of that mindscape which provided the lens for looking at data. Mr. Williams for instance grew up in Orange County and both his parents were teachers. He graduated from UCLA and married with two elementary school-age girls. He has a strong belief in the importance of education for the youth so that they can have college opportunities and better careers. He shared that his beliefs and values together with his college education have contributed immensely to shape his social justice mindscape.

Data as a diagnostic tool signifies that there is a problem, It could be a problem of underperformance, unequal opportunity, discipline, etc. It is the responsibility of school leaders to find solutions to the problem, which can happen through policy change, change in the method of teaching or areas of emphasis. Regardless of how issues are problematized, the use of data can serve as an effective tool for a call to action and for understanding what remedies are appropriate. When leading from a social justice mindscape, leaders will be moved to action on behalf of those who are marginalized.

Data as a Critical Roadmap

Common to all the school leaders was the perception of data as providing a critical roadmap for their decision-making processes. This was not surprising as four of the schools in the study were program improvement schools and these school leaders had to confront the realities of their students' performance data and graduation rates to ensure program improvement. The school leaders valued the role of data as providing them a roadmap to know and understand where to invest money and resources, as well as highlight programmatic issues to be address. Like every roadmap, data only provides direction. It is up to the school leader to use the direction to accomplish his/her goals. Several of the school leaders spoke about the difficulty of leading with a social justice mindscape because there is often a lack of a shared understanding of what equity means. They talked about the importance of using data to engage in conversations that challenged the conventional narratives about school success and failure. These conversations often involved questioning the deficit perspective that educators have about their students and the communities in which they live.

Mr. Robinson, a veteran teacher of English language at Morning Rose High School, is a case in point. Mr. Robinson stated that he uses equity-related data to guide his lesson planning. He looks at the test results when they come out, finds the particular areas in which his students were deficient and plans to re-teach those areas. He went back into the students' past records to know how the students performed in their previous classes

and also used that information to guide his future instruction. Similarly, Mr. Benson uses data to guide his decision making at Trojan High School. Data provides him the direction to go in terms of the distribution of available resources. Below is a quote from him with regard to the role of data as a roadmap for decision-making at his school.

Well, you know, it's important to use data because data is like a roadmap. If you don't know where you're going, how are you going to get there? So, it gives me an opportunity to look at information and make sound judgments based on the information that's provided to me.

In one of the interviews with Ms. Hernandez from Bell Flower High School, she also indicated the role of data in providing direction for action.

Well, data really is the guide. They can provide opportunity for advancements, for intervention, for attention, for resources; you know you use that data to build your reason...It's like a snapshot. We are taking a snapshot of kids, where are they?...Do they need intervention or are they advancing and proficient? Do they need enrichment so that they don't get bored and disengaged? So, that data piece is really critical to be able to help the student, either with enrichment or intervention.

Mr. Benson and Ms. Hernandez use data to track students' performance records and how to distribute available resources to support students. Consistent with the views of other leaders, these school leaders drew upon multiple forms of data to inform their decisions regarding teaching and instruction. Apart from the formal data points, they stated they also used informal data like students' family background, aspirations, and motivation to tailor support. As previously stated the social justice mindscapes of these leaders challenged them to take the right action so all their students will be equally successful.

Challenges to Data Use

Even though the school leaders perceive data as serving as a critical roadmap to decision-making and they use many data points to guide their sense-making and decision-making processes, they also feel that data are often not delivered or presented in a meaningful, timely and easily accessible manner. Despite having data software available (MyData, DataDirector, and SchoolCity) the school leaders in the study consistently reported that few teachers either know how to use it or choose to use it at all. Thus, many of the school leaders reported that, while data is important, the systems that many districts and schools have created to access the data are cumbersome and complicated. They indicated that teachers do not have time to wade through a forest of data to manipulate it into meaningful information. Mr. Evans, the principal of Seaside High School shared his thoughts about the challenges of using data.

The problem of schools is not the what, the problem in schools is the how. And so, where we're really struggling is with the use of data in schools. It is, first of all, putting data together in a way that's meaningful to classroom teachers; not only meaningful but also timely. That's our big problem right now, because we are not delivering to teachers data that influences how they create the lessons to address the concerns they see from the data...Not only deep data, but there is mechanism like giving them the time to look at that data, for instance. [It] is not built into their schedule to have the time to look at data and certainly not to look at data together.

The quote from Mr. Evans underscores the struggle the school leaders experienced with

the use of data. Though school leaders provide training they still face a big hurdle in getting teachers to use data consistently, systematically, and collectively. Data seems to be available at the schools but is not useful for teachers in the classroom for lesson planning and curriculum change.

The school leaders in this study were making conscientious efforts to transform their schools by interpreting data through their social justice mindscapes, but they faced uphill challenges that seemed to stagnate their efforts. Consequently, even with a social justice mindscape, school leaders need assistance with data management and manipulation before they can use it to shift the culture of inequity and close the achievement gap.

Data as a Reference Point for Crucial Conversations

It is often a challenge for educators to bring up the difficult issue of underperformance of Black and Latino youth for the fear of being labeled racist. However, for the school leaders in this study, who operated from social justice mindscape, many of them saw data as a tool to facilitate crucial conversations that had the potential to transform the system. Centering issues such as race, gender and marginalization, the school leaders in the study pointed to moments when they thought equity-related data played a critical role in helping them to have those crucial conversations at their schools. The principal of Knot High School, Mr. Coleman, used data to convince the parents at his school of the need to change the bell schedule. In an effort to provide additional academic support during the school day to students at risk of failure, Mr. Coleman was advocating to reduce instructional minutes to increase the lunch period to one hour. He wanted the school community to consider implementing an hour lunch period, which would provide time to provide tutoring within the school day rather than asking students to attend after-school tutoring sessions. Parents of high-achieving students, who noticed that their kids, instead of getting AP class for 58 minutes would only have 53 minutes of AP instruction began to argue, “Why would you want to hurt my kid and not have as much instruction for my kid who’s got to take this test?” This situation pressured the principal to use data to justify the need for the bell schedule change.

So, that stakeholder group [the parents of AP students] got specific data to be able to justify any consideration of why we remove or do something different that would impact their kids. So, it’s not a willy-nilly decision, but there’s some real reason and rationale behind why we do that.

The principal also used data to engage in a crucial conversation with another stakeholder group: the Instructional Council. In one case, the school held a Top Scholars Award Night, the first in the school’s history, where they recognized all 4.0 students. The principal was shocked to find out that over 500 students had a 4.0 or higher, which is almost a third of the students. This was unlike his former school, where out of 2,700 students only about 250 to 260 students had a perfect 4.0. At the same time, this smaller group of students’ academic performance was higher than that of Knot High School on state and national standards. The principal felt that something was off balance.

So, I purposefully used that data at the Instructional Council and it was a tough conversation because, in the same conversation, you know, you don’t want to beat them up saying grades are inflated. But, basically, that’s the message they got as a result of saying, ‘Is there a disconnect here?’ Because coupled with my own observation of classrooms, I’m not seeing the academic intensity that I saw in the grades.

Similarly, Ms. Waters, the assistant principal of Trojan High School, used data to have tough conversations with teachers. An example was when a larger number of students were not academically successful with a particular teacher. Waters used data to begin a conversation with the teacher about what to do in order to make the appropriate changes in their teaching style. Below is what Ms. Waters said about a particular teacher with regard to this issue.

I pull [data regarding] all the teachers—the numbers of Ds and Fs they give during the grading period. And the teachers that are high in numbers, I go to them and I'm like, "How can we fix this? What's the issue? How can I help you?" So that's what I do. I use the data to help them become better teachers. Because, if they can teach better, test scores will go up; kids will stay in school. It solves everything if they can teach better.

Data was a good reference point for her to start the conversation with teachers around issues of student performance. This is not always an easy dialogue, but the data becomes a tool to facilitate such conversations. Leading these crucial conversations is the social justice mindscape of these school leaders. They couldn't but challenge the teachers to do the right thing for the students. Data facilitated the conversation but it was their social justice mindscape that motivated them to use data to advocate for the change in the system.

Discussion

Schools are complex organizations that are greatly influenced by the environmental contexts in which they reside. The issues confronting many public schools are connected inextricably to the social, economic, and political conditions of the environments in which they are embedded. How school leaders make sense of this complex context underpins how they actually respond. The data allow them to interrogate the beliefs and values that guided their policy development. The school leaders in this study made sense of their schools and data and used this understanding to improve student outcomes from a social justice mindscape.

The findings from this study illuminate the complexity and the nuanced ways in which school leaders in large urban high schools both made sense of, and used, data to make important educational decisions. Specifically, data was critical in guiding school leaders to make decisions that were transformative at their various campuses. The school leaders used different data points to guide their decisions and use of resources. While equity-related data indicated the gaps in the learning opportunities and outcomes at each of the seven school sites, we argue that it was the social justice mindscape of the school leaders that motivated them to take action using data as a critical roadmap.

The three significant ways that school leaders in this study both made sense of, and used, data were: 1). as a diagnostic tool that helped them identify issues needing attention so as to create better learning opportunities for students, 2). as a critical roadmap to help the leader and school reach targeted goals, and 3) as a reference point for crucial conversations. In many ways, the school leaders used data to discover the areas of need at their schools. Teachers also used data to identify learning gaps and to plan lessons to cover the areas of need. However, this understanding and use of data, in a difficult school context, can put the emphasis on solutions that do not address social justice issues at the school, but rather doing something to survive being sanctioned.

A majority of the schools in this study were under program improvement and, thus, were under great pressure to improve due to this status. As Sergiovanni (1992) has

stated, the schools were pressured to do things right instead of doing the right things; for example, by only fulfilling the basic minimum requirements. Thus, the focus of many of the school leaders was on raising the scores of selected groups of students required in order to survive being sanctioned. In this context, the school leaders saw their job dependent on the strength of the number on measures such as the API, AYP, CSTs, and CAHSEE.

One of the major complaints by several of the school leaders was that data was delivered to them in a way that was not meaningful and useful. Consequently, even if the school leaders and teachers had time to look at the data, they did not have the skills to interpret and make meaning of the data. While data seemed to have been abundantly available, it often was not meaningful or useful. Though the school leaders perceived data as a critical roadmap to making decisions that would positively impact the academic performance of their students, they felt handicapped by the various issues surrounding the data management, interpretation, and translation in the classroom and curriculum.

While this study described the processes and components of how school leaders make sense of data to make socially justifiable decisions, a powerful discovery of this research is the importance of school leaders exploring and interrogating their values and beliefs about 'data' as a non-value laden concept. Several of them were unable to see how, despite their good intentions, their interpretation of data reinforced and perpetuated the inequities on their campus. For example, it is important for school leaders to understand that his/ her frame of reference can unwittingly predetermine whether one perceives A-G as equal access to educational opportunities, or as an unfair policy pressuring some students to pursue an unattainable expectation. This study reveals how critical it is for school leaders to reflect on how much their beliefs and values impact the decisions and choices they make for their schools and for the students. Therefore, there is a great need for leadership preparation programs to include a strong emphasis on a comprehensive understanding of social justice and how it impacts leadership, policy, systems, and values communication inside the curriculum. This finding is very consistent with other research in the field (Trujillo and Cooper, 2014).

Additionally, this study suggests that school districts need to provide on-going professional development around issues of social justice and equity, in order to help shape and reinforce a social justice mindscape of school leaders. School leaders must be encouraged and supported in actively engaging in reflection over their values and beliefs, social consciousness, emotional intelligence, competing worldviews, and the potentially biased nature of their subjective beliefs. According to Brown (2006), social justice calls for examination of personal, ontological and epistemological assumptions as a way to open subjective worldviews. Professional development programs should empower school leaders to perform this self-critique and reflection. Nevertheless, the powerful instances of some of the school leaders in this study of drawing from their social justice mindscapes to look at data that speak to gaps in opportunities and achievements is something that school leaders should emulate in order to address the inequities in our educational system.

Conclusion

The analysis of the findings challenges us to find solutions to the difficulties that school leaders encountered regarding the use of data to transform their schools. The specific aim and goal of this study was to explore the school leaders' sense making and use of equity-related data to transform patterns of inequality. Research suggests that when

school leaders make proper sense of data and use it in their decision-making they will be able to create better educational opportunities for historically underprivileged groups in our nation schools (Coleman et al., 1997; Diamond & Spillane, 2004; Goldring & Berends, 2009; Marsh, Bertrand, & Huguët, 2015; Muller & Schiller, 2000; Paige, 2006; Shouse, 1997; Skrla, et al., 2009).

Having social justice mindscapes and using such mindscapes in the interpretation and use of data could equalize educational opportunities for students of color who have been disenfranchised for far too long in our educational enterprise. This will also help to close the ever-widening achievement gap between African American and Latino students and their White and Asian peers. According to this study's findings, school leaders were making sense of data and using it in a variety of ways to transform their schools. In the process, however, they encountered challenges, internal and external, cognitive and otherwise, in the course of doing that. Many people think more data is better data, but this is not always the case.

For data to be useful in the fight for social justice and equity, it must not only be meaningful in illuminating the inequalities in the system that continues to limit the educational and career trajectories of America's youth. The data must also be understood and put into use for social change by people who have developed ways of knowing and thinking – developed a mindscape – that make it possible for them to use data transformatively. The school leaders' social justice mindscapes comprised their understanding of social justice, upbringing, theories of practice, experience, values and beliefs and this in turn impacted the way they made sense of and used equity-related data. Though the school leaders have similar conceptualization of social justice, some of them operationalized it differently. This difference is clearly demonstrated in the different perspectives that school leaders brought to their interpretation and use of equity-related data. Data as this study found is a powerful tool in the hands of school leaders to transform patterns of inequality and bring about change at their various schools and the way school leaders make sense of and use data depends on their social justice mindscape. Consequently, the authors advocate for social justice minded leaders in our schools.

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