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Advancing Educational Equity Research, Policy, and Practice

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Abstract: As student populations worldwide become more diverse and many are challenged by poverty and social exclusion, educational equity's importance grows, both as a core value and as a driver for school improvement and redesign. While national and local policies vary, as do resources in support of equity outcomes, it is timely to identify, synthesize, and evaluate the available research with special attention to commonalities, similarities, and lessons learned. Mindful of selectivity, we summarize eighteen years' worth of equity-focused research and development conducted under the sponsorship of a state-funded initiative in the USA called NYKids. Utilizing practice-embedded research methodologies, research teams have identified, described, and interpreted seven keynote features of equity-oriented schools. They also have implemented research-practice partnerships that facilitate equity-oriented school improvement. This holistic, evidence-based, and practice-centered approach can be classified as "a strong equity approach", albeit a selective one, when alternatives worldwide are surveyed.

Keywords: education equity; equal opportunity; research practice partnerships; culturally competent practice; social inclusion; improvement science

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Citation: Wilcox, K.C.; Lawson, H.A. Advancing Educational Equity Research, Policy, and Practice. *Educ. Sci.* **2022**, *12*, 894. https://doi.org/10.3390/educsci12120894

Academic Editor: Leonidas Kyriakides

Received: 19 October 2022
Accepted: 2 December 2022
Published: 6 December 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

1. Introduction

Educational equity, operationalized as fair and just treatment of every student, is a core value, a policy priority, a key standard for pedagogical practices, and a prized outcome in new school designs worldwide. While equity-focused policy and practice have been mainstays in some nations, the current impetus can also be attributed to massive migration patterns and nation-specific immigration policies. Two related descriptors are employed to describe equity-focused priorities for responding to, and anticipating, growing ethnic, cultural, linguistic, identity-related, and socio-economic diversity. Salient policies, practices, and innovative school designs aim to prevent social exclusion while facilitating students' social inclusion [1]. Beyond these generic features, enduring priorities worldwide start with the educational success of the greatest number of students—no matter what their background and characteristics—and with special attention to priority outcomes, some nearly universal (e.g., as measured on PISA tests) and others nation-specific.

While variability among and within nations is normative, four equity-related commonalities and similarities are noteworthy: (1) gender equity with special emphasis on girls and students self-identifying as gay, lesbian, bisexual, and transgender; (2) diverse students' social inclusion via varying combinations of cultural assimilation and accommodation; (3) students' preparation for workforce roles as adults; and (4) students' readiness to participate in and contribute to their host society's political, economic, and social institutions.

Educational equity should not be conflated with equality. While equity emphasizes customized practices and non-discriminatory, personalized treatment, equality means "sameness" achieved by standardization. This distinction is consequential for policy, practice, research and evaluation, and organizational designs for schools and other educational organizations.

In fact, the international movement toward new designs for schools and related education-focused institutions can be appreciated and analyzed as a shift away from equality-focused, standardized schools that operate like industrial age assembly lines [2]. Because "one size does not fit all", while student populations worldwide become more diverse, standardized schools founded on equality values and practices may have sub-optimal consequences. For example, in the United States, some such equality-designed schools have functioned as societal "sorting machines" [3]. They are implicated in social exclusion dynamics as well as early school leaving, withdrawal from mainstream institutions, and personal-social problems such as substance abuse, crime and delinquency, and unemployment.

In many nations, this grand transition away from schools founded on equality values and toward new designs founded on equity includes a policy imperative. New designs for equity should be theoretically sound, research-informed, data-driven, and positioned for organizational learning and continuous improvement. These requirements implicate a practical question of worldwide significance. What is the state of knowledge regarding schools that prize, make progress toward, and achieve equity?

This question has broad applicability and international significance, and it structures the ensuing analysis. We summarize key findings and explore selected implications associated with an equity-oriented research and development initiative in the United States called NYKids. Launched in 2004 with New York state government support, today this state-wide initiative offers almost two decades' worth of equity-oriented research and development findings and lessons learned.

Equity-oriented research and development initiatives everywhere are influenced by policy environments, funding supports, and context-specific facilitators and constraints. All such unavoidable influences and social determinants necessitate disclosures with forthright acknowledgement of inherent limitations. Three noteworthy ones follow.

First: It is impossible to provide representative summaries of every study conducted to date and the publications derived from them. Choices had to be made regarding which studies and lines of investigation were presented and how the discussion of them was structured.

Second: The selective references provided and the limited citations of relevant equity-oriented research studies conducted in the USA and elsewhere in the world nominate this as a special kind of research report—one that qualifies it as a qualitative evidence synthesis. In all such syntheses, researchers may employ selective sampling criteria (here delimited to NYKids studies) and findings. Researchers then undertake analytical comparisons across qualitative studies with the intent of "identifying themes or constructs" across the selected studies [4]. Ultimately, researchers are able to produce a narrative synthesis and, in some cases, a conceptual model, offering a holistic framework for research and development. Classifying our analysis in this way communicates the authors' aims and intentions in service of international readers and comparable equity-oriented research and development initiatives.

The third limitation is an indicator of research and development selectivity, some of which is attributable to the broad public policy agenda that has served as a research and development umbrella. In the main, NYKids research and development has proceeded with "conventional schools" in rural, suburban, and urban contexts. While some sample schools have offered expansive student services and out-of-school learning supports, and others have developed important innovations, our sample schools contrast with bold redesigns of models such as community schools, community learning centers, and multi-service schools [5].

2. A Diverse Equity Research Literature

Equity research and development has variable meanings in diverse contexts. While all manner of equity theory and research contributes to the grand international research and development agenda, the absence of rigorous scoping reviews completed with close

attention to conceptual precision and contextual variability is a manifest need and a timely opportunity for equity research and development specialists.

Perhaps "education equity" is destined to be defined, analyzed, and investigated somewhat variably. The challenges mount when researchers and school improvement specialists employ substitute language such as "social inclusion", "inclusive education", "social justice", "differentiated instruction", and "cultural competence" [6,7]. Other challenges arise when educators view cultural differences as educational deficits and extend this perspective to students' families [8].

Unit of analysis differences are omnipresent in equity research. Some researchers focus on identifiable sub-populations of students—for example, African American students in the USA [9], students with learning and developmental disabilities, girls and women, and immigrant and refugee students [10]. Students impacted by trauma are a new research priority as well [11]. Other researchers focus on teachers' orientations and behaviors [12]. Still others focus on the importance of preservice teacher education programs and professional development initiatives [13].

What research-related lessons learned can be derived from the vast, diverse education equity literature? Salient examples that have influenced our NY Kids' research and development initiative follow.

To begin with, the identification, description, and explanation of salient features of equity-oriented schools depend in part on the research designs employed to identify, describe, and explain them. There is no escape from the following empirical reality: Research design variability is normative. Indeed, when the full range of alternatives is surveyed and the international context is added, every study and every research review can be appreciated as inherently selective.

Selectivity appears to be unavoidable. The inherent comprehensiveness of "educational equity", advantageous in many respects, nonetheless presents endemic challenges. Whether the focus is policy, research, practice, or variable combinations of them, researchers, analysts, and advocates confront the same basic questions. How is educational equity defined and operationalized? What goals and outcomes do equity research and development specialists prioritize and investigate? What is the unit of analysis—students, teachers, schools, policies, families, and communities or some combination? What student populations are prioritized for study? What and who were omitted or selectively addressed? These questions and others they implicate raise questions and provide critical perspectives for evaluations of scoping reviews [14].

A recent example illustrates inherent selectivity and identifies differences in the units of analysis while calling attention to the importance of research context. Muench and Wieczorek provided alternative frameworks for "equity" as they investigated the quality-equity connection in two nations (the United Kingdom and Germany) with special interest in PISA scores [15]. Clearly, the outcome measure (PISA scores) is just one indicator of educational equity, and the researchers' focus on it is undeniably selective.

In sum, inherent research selectivity and silencing derive from at least three sources. The first is the population of interest, as reflected in the sample. The alternatives include immigrant/refugee student populations; students with special needs (e.g., developmental disabilities); girls and young women; gay, lesbian, bisexual, and transgender students; students in out-of-home care; and students impacted by trauma caused by adverse childhood experiences. A second source is predictable and unavoidable: research design constraints. Research designs differ in a variety of ways, including the number of researchers, their specialized interests and expertise, and the funding supports and requirements for their work. Consider, for example, the differences between secondary data analysis completed by one or two researchers versus site visitations conducted by teams and proceeding with multiple methods. Policy variability is the third source. Governmental policy is an important social-political determinant of educational equity agendas and improvement strategies, but with a caveat. Policy is also enacted as it is implemented in schools, and all such enactments include opportunities for policy innovation at the local level. This basic

feature of schools as organizations, including life in schools for educators, students, and other constituencies, recommends specialized research methodologies—not at the expense of alternatives, but alongside them.

Educational equity research, development, and policy thus are not a monolith. Variability is inescapable, and it recommends several related courses of action. For example, there is no substitute for specificity, the description of relevant contingencies and constraints, and particular interests that serve as implicit drivers for the research questions (e.g., external funding), the design strategy, and the dissemination channels.

What, then, is the importance of nation- and context-specific research and development initiatives? Schön and Rein's recommendation for international-comparative analysis is fit for purpose [16]. They recommend "lesson drawing" over time and across identifiable boundaries, together with cautions and warnings against direct, wholesale technology transfer. Such is the recommended framework for the NYKids agenda and findings we present next.

3. NYKids Methodological Contributions to Equity Agendas

Aiming for practical import and policy guidance, the NYKids leadership team has developed and implemented a preferred research strategy. We offer it as an equity-related contribution.

Beginning in 2004, NYKids research has proceeded with comparative case studies using multiple methods. Many such studies are founded on and informed by social-ecological theory that focuses attention on the ways systems at the macro-, exo-, and micro-levels impact individual and collective experiences and outcomes [17]. This aligns with NYKids researchers' intent to center research on various levels of systems (i.e., from classroom to district offices) and important contextual considerations (e.g., urbanicity, diversity, poverty of schools' host communities) to yield practical ecologically-nuanced implications for the wide variety of communities in NY state. Figure 1 presents a depiction of the conceptual framework and our synthesis of major findings in relation to this framework.

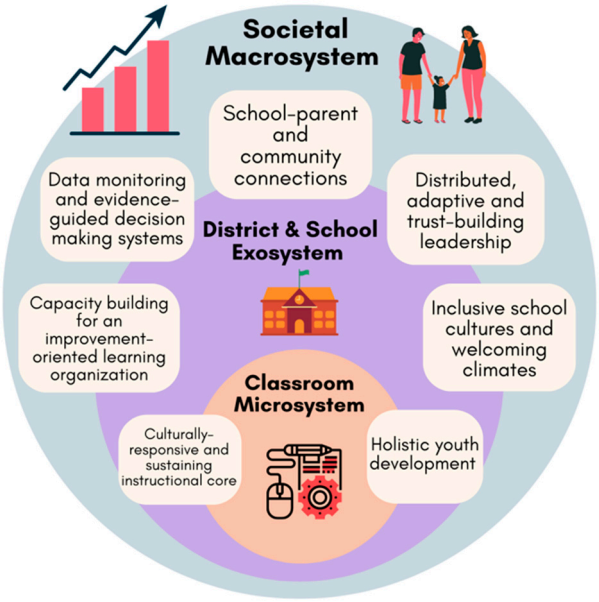

Figure 1. Keynote Features of NYKids Equity-oriented Schools.

The sampling strategy also merits examination. Framed by social-ecological theory and structured by salient standards for rigorous, practice-oriented comparative research and analysis, the NYKids sampling strategy has prioritized two criteria: (1) the school locale (rural, suburban, or urban); and (2) the level of schooling (elementary, middle, or secondary (high) school). Only schools with open admissions and those with low or typical wealth

indexes are included, and schools serving higher levels of poverty and higher percentages of ethnically, culturally, and linguistically diverse students are prioritized.

Furthermore, New York State's data systems have enabled a comparative sampling strategy with special attention to schools' demographic characteristics. Schools that achieve predictable student outcomes (called "typical schools") are sampled alongside comparison schools (with similar community settings and student populations). These comparison schools, called "positive outlier schools", achieve comparatively better outcomes over at least three consecutive years. Regression analysis is the standard procedure used for sample selection, with statistically significantly higher Z scores (<0.8) most commonly the threshold for qualifying as a positive outlier. Relevant outcome measures used in these analyses have varied from year to year and study to study. Examples include subject matter assessments (e.g., science, math, English language arts) and graduation rates.

It is important to note that "typical" schools sampled for comparison with positive outlier schools do not necessarily lack an equity focus. These schools earn their status as "typical" because of their outcomes for any combination of students identified as African-American/Black; Hispanic/Latinx; student with disabilities (SWDs); English or multilingual learner; or economically-disadvantaged (SES indicator).

To discover how positive outlier school educators achieve the outcomes they do with diverse groups of young people, qualitative field methods are employed, guided by the overarching and practical question: How do positive outlier schools achieve the diverse student outcomes they do, and how do they differ from typical schools?

During each iteration of field studies, teams of NYKids researchers completed site visits to the two kinds of sample schools (i.e., positive outlier schools and typical schools). Studies have included between nine and 16 schools total, with purposeful attention to matching the demographic contexts of typical and positive outlier schools and a heavier weighting of positive outlier schools in the sample to yield more insights into promising practices. The research teams have varied in size from study to study, albeit with some commonality. In addition to the principal investigator/university researcher, teams always have included at least one co-investigator/researcher and two assistants, who may be doctoral students or practicing professional educators. Some studies have included more than ten researchers deployed for field work in both positive outlier and typical schools.

In each study, researchers employed multiple data collection methods (e.g., key informant interviews, focus groups, secondary data analysis, observation). Following data cleaning, and as is recommended in qualitative case study designs, multiple methods to address credibility threats were used, including peer researcher debriefing of the data and collection process (through interpretive memoing and whole research team debriefing); identifying disconfirming evidence through phases of open and axial coding (assisted by the use of data matrices); researcher memoing and debriefing for the purpose of identifying bias and subjectivities; and member-checking (i.e., individual school case studies shared with district and/or school leaders to ensure accuracy). In the end, researchers construct thick case descriptions of each school. These case descriptions (all published online at ny-kids.org (accessed on 10 November 2022)) have enabled cross-case analyses, which provide empirically grounded descriptions, plausible explanations, and implications for research, policy, and practice.

This design has enabled NYKids research teams to identify inter-school differences while exploring these differences' consequences, correlates, and implications. Put another way, this comparative research design has provided timely opportunities to discover how inter-school and inter-district office variability helps to explain differential equity-oriented improvement/performance mechanisms and student outcomes.

To identify keynote features of positive outlier schools (n = 69) (in some reports described as "higher-performing" or "odds-beating schools) and for this synthesis, we conducted open coding in NVivo 12 plus qualitative software of all NYKids multiple case study cross-case findings from study years 2005, 2007, 2008, 2011, 2013, 2015, and 2018 (see Appendix A for sample demographics). This process of open coding resulted in seven

parent codes (capacity building, culture and climate, curriculum and instruction, data monitoring, holistic youth development, leadership, and school-community connections) and 26 child codes representing dimensions of each parent code (see "sunburst" code report in Appendix B). One example of evidence coded at the capacity building/instructional capacity building systems node is presented in Table 1 and was sourced from the 2011 elementary school study.

Table 1. Sample code report.

Parent Node: Capacity Building	Sample Evidence
Child node: Instructional capacity building systems	. . . one of the ways higher-performing schools differ from their average-performing counterparts is in the ways they have built capacity for teachers to use a variety of programs and practices for developing literacy among diverse learners, do this early in a student's elementary years, and utilize technology in ways that help monitor literacy development and motivate students at the same time. Supports such as Academic Intervention Services (AIS) also help and will be further discussed in the final section of this report. (2011.ES.CriticalNeeds.Report)

4. Keynote Features of Equity-Oriented Schools

The line of investigation with the above-mentioned research strategy has served to identify seven key features of schools that make demonstrable progress toward educational equity. Alone and together, they are offered in service of lesson-drawing for equity-oriented policy, practice, and school designs.

It is noteworthy that some features of these schools have been identified and described in several NYKids studies. For example, equity-oriented educators view and treat children and youths holistically, i.e., their interactions are not restricted to academic learning and achievement [18].

The following list reflects the prevalence of NY Kids-identified equity-oriented features: the first one is the most prevalent, while capacity-building systems are the least. The mere fact that these features have recurred in NY Kids research nominates them as significant commonalities, alongside inter-school and inter-community diversity.

1. Culturally responsive and sustaining instructional core;
2. Distributed, adaptive, and trust-building leadership facilitated by effective communications;
3. Inclusive school cultures and welcoming climates;
4. Data monitoring systems and evidence-guided decision-making;
5. School-community connections;
6. Holistic youth development;
7. Capacity-building for an improvement-oriented learning organization.

4.1. Culturally Responsive and Sustaining Instructional Core

Curriculum designs and instructional/learning strategies comprise the core technology for schools worldwide. Equity-oriented NYKids' research confirms their importance.

NYKids' research reveals that teams of educators in the same schools, consisting of teachers, principals (head teachers), and school district leaders, collaborate on curriculum and instruction planning and improvement. Teams develop timely, responsive innovations, and they worked together to co-create and promote an environment where new practices could "stick", thrive, and spread.

A key dimension of this work has special import for educational equity. Educators demonstrated the ability and willingness to revise the curriculum and differentiate instruction based on their students' and community's values and needs. They did so for youth with special needs, and they emphasized culturally responsive pedagogies for youth from diverse linguistic and cultural backgrounds. A core finding from NYKids' first middle

school study is instructive. Sampled based on three years of English language arts and mathematics performance among African-American, Hispanic-Latino, economically disadvantaged, and students with English language learner status. Higher-performing positive outlier schools in this study, like in other NYKids studies, establish a collaborative environment and organizational structure that support teamwork between and among teachers, school leaders, and administrators. Groups of teachers, administrators, and specialists meet frequently and focus on specific instructional strategies and student performance within and across grades [19].

To reiterate: Several NYKids' research iterations have served to identify this kind of equity-oriented, collaborative team planning in service of innovation and continuous improvement of the curriculum and instruction. In other words, school-wide equity depends on collective action strategies, usually called "teamwork", focused on the instructional core.

4.2. Distributed, Adaptive, and Trust-Building Leadership with Effective Communications

Distributed, trust-building leadership, facilitated by effective communications, characterizes equity-oriented schools as well. Consistent with the importance of teamwork in support of the instructional core, we discovered a consistent emphasis on the distribution of leadership across district and school leaders and frontline educators. Heifetz's concept of adaptive leadership, which differentiates between leaders as people and leadership as a collaborative activity, describes a key dynamic in positive outlier, equity-oriented schools [20].

Distributed, adaptive leadership depends on trust and effective, appropriate communications. They are mutually constitutive, i.e., each reinforces the other. This important dynamic involving trust and communications was manifested in the transparency of communications among school and district staff and with community stakeholders, including parents and other caregivers [21].

Several other practices and processes related to leadership, communications, trust, and capacity building were found to be salient to English language learners' relatively better performance. Key equity-oriented features included stable, empathic leaders; staffing fit for a diverse school; affordances for teachers' discretionary decision making; and widely distributed pedagogical knowledge about teaching English language learners facilitated through professional development opportunities, which oftentimes were provided by staff in the school, district, or regional teacher support network.

4.3. Inclusive School Cultures and Welcoming Climates

The next most common finding in our studies was related to school culture and climate. An equity-oriented organizational culture is an enduring feature of these schools, and it influences the "here-and-now atmosphere" in these schools as organizations—their climate. What are the demonstrable, practical indicators of inclusive cultures and welcoming climates? NYKids researchers discovered a consistent, visible priority for establishing and maintaining high expectations for youth and for all of the professional educators in each school.

Where students in these equity-oriented schools were concerned, educators assigned a high value to finding effective ways to bring out each student's potential—seeking, testing, and implementing diverse strategies that were fit for purpose. These overall efforts started with academic performance but also transcended it. School professionals made purposeful efforts to develop and maintain a school climate that feels welcoming and inviting to youth, parents, and caregivers of different backgrounds and with different needs and priorities. What is more, educators expressed priorities for high expectations for every student, equitable access to opportunities to learn, and the inclusion of diverse youth in academics and extracurricular activities.

Students' perceptions in equity-oriented schools match educators' intentions and goals. This correspondence, as indicated in a finding from NYKids' phase 2 College and Career Readiness study, focused on positive outlier secondary schools [22]. Two examples are

illustrative. One student attended Crown Point, a high poverty rural school, while the other attended Malverne, an ethnically and socio-economically diverse micropolitan school.

The Crown Point student: "Really, it's a blessing to come here because even though it's a small town and school, you get to know everyone".

The Malverne student: "Everyone, all the teachers here really are open to the students. They want to make sure everyone is comfortable, and everyone is doing their best like even outside of school and how they're feeling".

It is noteworthy that, in equity-oriented secondary schools, students' orientations and responses matched educators' orientations and responses. Together, they signal important features of equity-oriented schools as organizations, signifying an important dynamic in their respective cultures and climates.

4.4. Data Monitoring Systems and Evidence-Guided Decision Making

Data monitoring systems and evidence-guided decision-making processes comprised the next most prevalent research finding. The positive outlier schools were distinguishable from typically performing schools by their continuous data monitoring systems, their capacities to interpret data as evidence of their progress, and their attention to variability in outcomes across individual students and diverse groups of students.

Importantly, these schools' data systems informed decision making that was timely and designed to identify the greatest gaps between desired outcomes and reality. These systems facilitated timely interventions and adjustments to close those gaps—for example, for students identified for special education services and for students assigned to student support professionals (e.g., school psychologists, counselors, and social workers).

One example comes from one of NYKids' high school studies with selection criteria similar to those in other studies (i.e., African-American, Hispanic-Latino, economically disadvantaged, English language learner status), and including students with special needs. In one study, a school superintendent gave voice to this priority: "We believe we need to early detect the issues and needs of our kids", he said.

All in all, equity-oriented, higher-performing positive outlier school educators monitor, share, and use student social/emotional data in conjunction with achievement data to inform the use of timely, targeted interventions in a whole-child intervention loop.

On the other hand, the differences between the typical- and higher-performing positive outlier schools regarding data monitoring and data use are nuanced. For example, while all sample schools employed software that managed data about behavior referrals, attendance, and academics, educators in positive outlier schools use data strategically—to inform timely interventions and adaptations to instruction and other specialized services. In contrast, educators in typical schools do not necessarily use these data to inform classroom instruction or interventions outside the classroom in a timely and consistent manner, if at all, and they are less likely to be sharing data across content areas.

4.5. Connections with Families and Community Members

School-community connections include those efforts to align district and school priorities and actions with family needs and community members' priorities. Educators in our research studies expressed the view that they are more effective when they are supported by parents, caregivers, and community members.

Solid, effective connections with families and community members mirror school-specific and school district-wide, equity-oriented improvement initiatives in a fundamental way. All depend on trust-building leadership and two-way communications. For example, a NYKids study conducted in the context of the implementation of a policy initiative called Race-to-the-Top (RttT) enabled investigative probes into school-community connections during a tumultuous period. Differences were evident between equity-oriented schools (called "odds-beaters") and typically performing comparison schools [23].

Educators working in equity-oriented, positive outlier schools made formal efforts to improve parent engagement. Principals, district officers, and teachers shared leadership

for this priority because of twin beliefs: educators believed they needed support from the parents, and these professionals also believed that they needed to help parents support and nurture their children.

In contrast to one-way, school-centered relationships with parents dominated by and in service of what educators want and need, educators in equity-oriented, odds-beating schools established mutually beneficial relationships with parents, making active efforts to reach out, listen to, and support them. Unlike educators in typical schools, who oftentimes sought parental involvement on the school's terms, positive outlier school educators sought to meet parents' needs and, all in all, join forces with them in service of their children.

4.6. Holistic Youth Development

Over the time period of NYKids' studies (2004–present), holistic youth development has become an international priority, particularly in secondary schools [24]. In brief, educators must cease viewing and treating young people narrowly as "students" with an exclusive priority for academic learning and achievement. Instead, educators in equity-oriented schools prioritize structures and strategies for youth engagement and holistic development. Our research discovered the same emphasis in positive outlier schools.

For example, we found that, in general, positive outlier schools were centered on relationship and connection: Between youth and adults; among youth and their peers; and extending to youth with community members far and wide. Educators in positive outlier schools also emphasize school-wide programs aimed at students' social-emotional well-being. For example, some equity-oriented schools have relied on school-wide programs such as positive behavioral interventions and supports (PBIS) and social-emotional learning programs, but they have done so in a special way. Educators have expanded these programs, while seeking to connect and integrate them with other student support initiatives. Positive outlier schools thus tend to be characterized by important connections among programs and services as well as priorities for coherence and practical impact.

The most recent NYKids studies at the secondary level discovered an increased emphasis on supporting youth to develop positive peer relationships and, in general, encouraging all educators to take a more holistic view of student success, i.e., educators prize outcomes such as civic engagement alongside academic success. Youth participating in the more recent study, which focused on college and career readiness, described the diverse opportunities offered to explore their interests and talents. In the words of two student participants:

> *"There are going to be a lot of situations where you have more choices. Instead of being told just what to do, you'll have to think out-of-the-box and figure out something, a different way to do something or another way of expressing an idea. I think that having a lot more freedom of how you want to do things kind of helps you prepare for that."* —Alex (Crown Point school)

> *"Sometimes I have to go to a different school, and I talk to the kids that are in the school, and whenever I tell them that I'm part of the Marching Band or we have a musical every year and I'm part of that, they're like, "Oh we don't have that."* —Mary (Malverne school)

In contrast to stereotypical characterizations of high schools in which student discipline and the avoidance of problems are the primary focus, youth participants from Crown Point and Malverne reported educators' commitments to growing their unique competencies and indicated that they are valued as agents for good in their own and others' lives. All in all, our interviews and focus groups with the 22 young people emphasized how their prior experiences and current interests are tapped in school, with positive effects on school engagement and performance. Adolescents shared the perspective that school leaders, teachers, and other staff play a crucial role in their development and contribute to their sense of agency, i.e., their increasing capacities for self-determination in school contexts.

In another study, teachers' sense of agency was related to students' agency. NYKids researchers described this phenomenon as "reciprocal agency" and viewed it as an important facilitator for teachers' and students' engagements and beneficial outcomes [25]. Other USA researchers have identified the importance of this educator-student relationship framework as well [26].

4.7. Capacity-Building for an Improvement-Oriented Learning Organization

Educational equity starts with policy imperatives and mandates structured by governmental agencies. However, the realization of equity in the educational process and outcomes depends on two other priorities: The workforce and schools-as-organizations. This is a dual priority because each influences the other. A high-performing, equity-oriented school depends on a competent workforce. Reciprocally, the school as an organization's ability to achieve equity-oriented outcomes depends fundamentally on its workforce, especially its teachers, student support professionals, and principals (also known as head teachers). Together, they are social determinants of schools as learning organizations while influencing other equity priorities [27].

The priority for workforce competency includes investments in teacher professional development, opportunities for the mentoring of new teachers, and teacher teams and professional learning communities. These collective action formations enable educators, especially teachers, to support each other's instructional improvements, especially when they are tasked with performance adaptation requirements [28].

Organizational capacities start with sufficient resources and mechanisms for allocating them efficiently and effectively. They include capacities for data collection, management, and utilization in the service of equity and improvement overall.

Notwithstanding the importance of all such commonalities and similarities, each school's uniqueness also matters when policy mandates demand innovation. Here it is important to report that some measure of school autonomy has proven to be essential with regard to capacity building in equity-oriented schools. Equity-oriented leaders recognize this, alongside requirements and constraints, and so do their workforces overall. They have learned how to capitalize on their professional discretion, making adjustments and developing innovations in their incessant efforts to learn and improve.

The US educational policy initiative known as "Race to the Top" (RttT) provided NYKids' researchers with additional opportunities for equity-oriented research and development. "Race" in this initiative did not refer to student characteristics. Rather, it was based on international competitiveness in the global economy. Toward this end, RttT prioritized schools' central roles in the development of young people's college and career readiness. While "college for all" was not the primary aim, the policy assumption was that high school (secondary school) graduation, while important, was insufficient. Each individual's participation in the global economy and the nation's standing depended on more students completing post-secondary education and with advanced competencies and dispositions needed for the global economy. This new outcome domain oftentimes necessitates structural changes and performance adaptations in school systems oriented nearly exclusively toward successful secondary school completion.

NYKids researchers were tasked with investigating schools and school systems that managed necessary transitions toward college and career readiness while continuing to achieve better-than-predicted outcomes in view of their student populations. These several studies offer another set of insights and practical priorities for equity-committed educators, especially because educators were compelled to design, find, and implement timely innovations in service of "cradle to career education systems", which include post-secondary education institutions such as community colleges, universities, and vocational-technical training centers.

Table 2 presents a selective summary of the most important RttT findings. Together, they nominate sample school systems as improvement-oriented, learning organizations, i.e., ones in which educators continue to learn and improve [29]. Improvement Science's slogan

describes a key research finding: Educators in these sample schools continuously strived to get better at getting better [30]. They learned as their host schools as organizations improved. Reciprocally, educators' learning and improvement were connected to organizational changes and improvements in local educational policy.

Table 2. A Selective Summary of Race-to-the-Top Research Findings.

School and district office leaders emphasized the comparative advantages associated with required and recommended improvements
Leaders developed district-wide alignment policies and practices to ensure unity of purpose in support of collective action strategies
District office leaders reallocated resources and obtained new ones in service of the required innovations
Leaders invested in strategies for crafting and improving educators' coherence, i.e., leaders made investments in support of shared understanding and widespread commitments to required innovations
Leadership was distributed in district central offices and in each school, and it was manifest in planning teams and communities of practice.
District office and school leaders served as boundary-spanners and boundary-crossers, facilitating both "top down" and "bottom-up" knowledge generation, learning, and improvement.
Boundary specialists were instrumental in identifying several important priorities, such as professional development for teachers and better data systems.
Professional development supports and programs were customized to fit special needs and aspirations.
District and school leaders reconfigured timetables and job descriptions to enable shared planning time—with special priorities for curricular alignment and coherence.
District and school leaders reallocated resources and developed community connections in a concerted effort to address students' barriers to attendance, engagement, learning, academic achievement, and graduation.
Teachers were provided with professional development supports aimed at facilitating whole-school transitions to data-informed, differentiated, linguistically adapted, and culturally responsive instruction—with special emphasis on students' abilities to self-regulate and engage in higher-order thinking.
All educators prioritized the development of inclusive classroom environments and cooperative school climates, ones in which every adult assumes shared responsibility for the educational success of each child.
Principals and teachers were afforded professional discretion regarding how best to implement required innovations, and district office leaders regularly sought their feedback in the service of learning and improvement.

Another significant finding from NYKids research is oftentimes lost from view in research focused exclusively on students and academic performance. The sample schools that were able to adopt and implement new policies while developing and improving their own innovations, enjoyed comparatively stable and high-quality workforces. More fundamentally, teachers in positive outlier schools can be characterized as enjoying a potent combination of personal agency, efficacy, and resilience, which helps to explain their professional engagement [31].

All in all, the positive outlier schools in the NYKids research stand in stark contrast to some school systems that serve large numbers of vulnerable student and family populations. Worldwide, high turnover among students tends to be accompanied by high turnover in the education workforce. All in all, an unstable education workforce that lacks salient commitments, competence, and organizational supports impedes the achievement of equity-focused outcomes at scale.

5. Taking Stock of the Findings and Considering Implications

There is no escape from the selectivity in the studies summarized above. It is manifested in the framing and operationalization of the research questions, the research designs, the theoretical and empirical frames, and the special features of the policy context. The NYKids researchers' orientations and interpretations are selective, omnipresent, and inescapable. The funders' influence may be variable over the several years of research and development, but it remains tangible and needs to be acknowledged. Such is the inherent nature of all manner of educational equity research initiatives everywhere: They attend to and emphasize some phenomena of interest at the expense of alternatives.

Expert educational equity researchers worldwide seeking path-breaking methodologies and bold, new findings and conclusions may be disappointed by the preceding analysis, especially the main findings and accompanying claims. Three reminders and a special perspective appear to be in order.

Just as beauty lies in the eyes of the beholder, educational researchers, policy leaders, and practitioners worldwide will hold different views on the NYKids agenda and the synthesis of findings. A predictable criticism can be reframed advantageously. Insofar as the equity-oriented schools in NYKids research mirror salient characteristics of "effective" and "good" schools worldwide, leaders advocating and striving for more equity are able to draw on substantial segments of the research-oriented knowledge base for effective and successful schools. Drawing lessons from one national context to another is advantageous, and this claim applies to the research and development findings provided by NYKids.

The second reminder is that all research-based knowledge is perspectival [32]. In other words, every research study and the claims it yields must be interrogated and evaluated for their selectivity and silences. Toward this end, NYKids researchers have striven to acknowledge and meet the accompanying challenges, as indicated by the cautions and contingencies offered throughout this analysis.

The third reminder is related to the first two, and it is founded on the foundational contributions of T.S. Kuhn [33]. Science advances through researchers' paradigms and methodological exemplars. Replication and extension studies are essential and normative. Science is animated by them, and the truth values of the findings, including their reliability and use values, depend on replication and extension initiatives. The NYKids research and development agenda can be viewed, evaluated, and appreciated in this way. Inherently selective and oriented by specialized theoretical considerations (e.g., social-ecological), it also provides a distinctive, specialized line of research and development, one that includes a framework for stimulating and structuring improvement, albeit with limitations with regard to making causal claims.

These three reminders provide a foundation for a dual perspective. Insofar as sample schools making progress toward equity ideals appear to be aligned with research on effective schools, especially those functioning as improvement-focused learning organizations [34], the claim can be made that the pursuit of educational equity is inseparable from comprehensive, multi-faceted school improvement overall.

The other perspective has international import. Beyond the metrics, educational equity is a core value in the NYKids sample schools making progress toward its expression and achievement. Arguably, strategies may vary, but without the core value commitment, equity claims are hollow, and equity researchers are likely to miss important phenomena of interest. Meanwhile, the inherent tension must be managed. Equity-oriented values may launch the research and influence the design, but once the research is underway, value commitments must be suspended. Rigorous social science depends on this balance.

6. From Analysis to Research-Informed Improvement

Equity-oriented education research worldwide offers new policy directions and practice guidance, albeit with predictable variability. Two main challenges are nearly universal. What are the optimal strategies for communicating and disseminating equity research

findings and recommendations? What structures and strategies can local school systems employ to facilitate research utilization?

Research practice partnerships (RPPs) provide one answer to the first question. Some are predicated on the idea of simultaneous renewal of higher education programs and school systems. Equity-oriented innovations and improvements in one need to be connected to companion initiatives in the other [35].

While RPP-structured mechanisms for research communications and dissemination are essential, they do not ensure utilization in service of equity ideals. Practice-embedded, school-specific frameworks are needed.

In response to this international priority, NYKids' leadership has developed a special model for research utilization in service of continuous improvement. Called COMPASS-Aim this action-oriented organizational learning and improvement framework provides operational structures and mechanisms enabling school-based teams to take stock of equity-oriented research findings derived from like kinds of positive outlier schools and, with the guidance of an outside facilitator, compare research findings with local policies and practices [36]. When local school improvement teams conclude that others have developed better strategies for achieving desirable outcomes—and local school team members commit to implementation of these strategies or some variation of them—research utilization in service of equity-oriented improvements may result.

This RPP model has importance for equity-oriented, improvement, and redesign initiatives worldwide, albeit with a reminder. Knowledge mobilization and utilization are not merely technical exercises. All such knowledge work depends on "brokers"; invokes educators' values, beliefs, and commitments to past and present practices, and oftentimes requires new "mindsets" among targeted research users and collaborators [37].

7. Conclusions: A Practice-Forward Approach to Equity

In the Foundational Handbook of Improvement Research in Education, Peurach et al. describe a consequential shift involving two approaches to improvement. They name one approach "resource-forward" and the other "practice-forward" [38].

A resource-forward approach is oftentimes associated with top-down educational policy. The logic is familiar in many parts of the world. Resource distribution and redistribution are among the main strategies to address longstanding issues of equity. Typical improvement and redesign priorities include standards and associated curriculum materials; accountability systems and associated mechanisms for teacher and student evaluation; and financial and human resources needed to benefit youth, schools, and communities manifesting need. All such policies and strategies tend to include assumptions regarding generalizability, universality, and indeed, equality.

A practice-forward approach challenges the resource-forward view, particularly its assumptions regarding generalizability, universality, and equality. This practice-forward, equity-oriented approach emphasizes uniqueness among young people, schools, and host communities. It thus prioritizes local knowledge in improvement—i.e., what needs to be addressed for whom, how and why, and under what conditions. This practice approach is also participatory-democratic because it assumes that the stakeholders closest to the needs and problems are best positioned to address them.

The NYKids research and development agenda can be appreciated and understood as a practice-forward approach facilitated by a research-practice partnership (RPP) framework. In contrast to generic RPPs, the NYKids model is value-committed. It is focused on educational equity, and it proceeds with a continuous improvement mandate. This approach enables NYKids and partner schools to give expression to improvement science's mantra: together, we strive to get better at getting better in our shared pursuit of educational equity.

We conclude with two important reminders derived from equity-oriented improvement scholarship: (1) equity continues to be defined in a variety of ways; and (2) the goals and character of equity-oriented improvement efforts are impacted by how equity is defined.

One definition has been named strong equity [39]. It requires effective collaboration among diverse stakeholders. Together, they must recognize the reproduction of inequities through the everyday structural and systemic aspects of schools, school systems, and the society in which these have come to be embedded. Once they have suitably framed and identified the multiple challenges associated with achieving and sustaining equity, their proposals for improvement and redesign have a better chance of succeeding.

Thin equity, on the other hand, is predicated on a narrower, shorter-term perspective [39]. Here, the focus is on individuals. It prioritizes equitable outcomes framed by grand educational goals that are universally applied and presumed to be universally shared. The root metaphor of the industrial assembly line is implicated, as are assumptions regarding educational equality.

The differences between strong and thin equity are consequential everywhere, and they will continue to inform NYKids' research and development agenda moving forward. Thin equity offers a relatively narrow and shallow framework because it does not interrogate the societal roots of inequities, the policies that produce them, and the system-wide challenges that must be addressed to improve equitable school structures, operational mechanisms, and outcomes. What is more, the strategies and structures associated with thin equity do not invite and require sustainable, effective partnerships founded on the simultaneous renewal and improvement of practice, research, preservice education and professional development, and policy.

Mindful of justifiable variability worldwide, the international pursuit of strong equity (and social inclusion) necessitates holistic frameworks rooted in strong philosophical values and commitments. Ainscow's summary is informative:

> *" . . . the promotion of equity and inclusion is not simply a technical or organizational change—it is a movement in a clear philosophical direction. Moving to more inclusive ways of working therefore requires changes across an education system. These span from shifts in policy makers' values and ways of thinking, which enable them to provide a vision shaping a culture of inclusion, to significant changes within schools and classrooms."* [1]

NYKids research and development adds weight to this conclusion and also demonstrates that equity and social inclusion initiatives vary justifiably because they are customized in part to fit local, regional, and national contexts.

RPPs such as those developed by for NYKids are also important because they connect researchers and their respective universities with education practitioners and their respective school systems. Partnership configurations, extended to include governmental policy makers, enable all participants to learn and improve coherently and synergistically.

We have structured the preceding analysis in service of this fundamental claim, and we have provided real world examples of research and development findings regarding equity-related frameworks, priorities, progress indicators, and outcomes.

Finally, summative and integrative research reports such as this one implicitly require authors and readers to consider the endemic tension between scientific rigor and practical relevance. Twenty years ago, Nowotny et al. framed the issue as one involving two knowledge systems [40]. They emphasized noteworthy differences, possible relationships, and an overall policy shift toward problem-solving research and development in real world settings.

Mode 1 scientific and scholarly knowledge references and derives from impartial social analysis facilitated by deliberate distancing and referential boundaries. In contrast, Mode 2 knowledge is practice-based in service of pragmatic problem-solving and public policy guidance. While these two knowledge modes are not mutually exclusive, they necessitate consequential choices. What kind of knowledge? In service of what goals? What and whose interests are served?

Our practice-centered and policy-relevant research synthesis can be evaluated accordingly. It derives from and represents one genus of Mode 2 knowledge production—in this case, in service of equity ideals, policies, practices, and outcomes. Mindful of inherent selectivity and manifest limitations, we offer the synthesis of findings, research designs,

implications, and our interpretations to the international agenda in service of educational equity for everyone, everywhere.

Author Contributions: Conceptualization, H.A.L. 55%; K.C.W. 45%.; methodology, K.C.W. 55%; H.A.L. 45%.; data curation, K.C.W. 75%; H.A.L. 25%.; writing—original draft preparation, H.A.L. 55%; K.C.W. 45%.; writing—review and editing, K.C.W. 55%; H.A.L. 45%.; visualization, K.C.W. 75%; H.A.L. 25%. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The studies reviewed were approved by the Institutional Review Board of the State University of New York at Albany(protocol approval numbers: 06385, 07427, 08327, 10232, 12266, 16e026, 17x19001, 21e027) for studies involving humans.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the studies.

Acknowledgments: We owe a debt of gratitude to all of the practitioners, researchers, and university administrators who helped support this research.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A.

Table A1. School Demographics.

2005 Study Schools: Level-Elementary (Outcome measures: ELA and Math)	Grade Span	Total Enrollment	F/R Lunch Eligible or Economically Disadvantaged	ELL	African-American/ Black	Hispanic/Latino	White	Other	PPE *
Charles A. Upson Elementary School	PK–5	440	44	0	11	3	85	1	$11,335
George M. Davis Jr. Elementary School	K–5	692	42	10	26	19	50	5	$15,976
Gotham Avenue Elementary School	PK–6	743	60	9	57	25	3	15	$11,938
Lawrence Avenue Elementary School	PK–4	455	35	1	3	1	93	3	$13,553
Mannsville Manor Elementary School	K–4	233	54	0	1	0	97	2	$9872
Naples Elementary School	K–6	526	30	0	0	2	96	2	$11,699
Smallwood Drive Elementary School	K–5	688	8	0	5	0	92	4	$11,803
Traphagen Elementary School	K–6	373	61	0	93	5	1	1	$14,334
Ulysses Byas Elementary School	K–6	420	100	19	73	27	1	0	$18,020
Webster Elementary School	K–5	523	77	0	26	2	70	2	$15,976
NYS Average	N/A	N/A	37	7	20	20	54	7	$13,805
2007 Study Schools: Level-Middle (Outcome measures: ELA and Math)									
Westbury Middle School	6–8	849	74	14	46	51	1	2	$20,650
John F. Kennedy Middle School	7–8	1025	70	10	21	13	62	4	$12,980
Port Chester Middle School	6–8	795	52	14	11	68	21	1	$16,102
West Middle School	6–8	790	57	0	19	5	72	3	$13,168
Niagara Middle School	6–8	573	55	0	32	1	61	6	$15,410
Albert Leonard Middle School	6–8	1237	23	0	32	14	49	5	$18,226
Holland Middle School	5–8	387	22	0	0	0	100	0	$13,242
Queensbury Middle School	6–8	945	13	0	2	2	95	1	$11,847
Finley Junior High School	7–8	634	32	7	15	18	65	1	$21,452

Table A1. *Cont.*

2005 Study Schools: Level-Elementary (Outcome measures: ELA and Math)	Grade Span	Total Enrollment	F/R Lunch Eligible or Economically Disadvantaged	ELL	African-American/ Black	Hispanic/Latino	White	Other	PPE *
Vernon-Verona-Sherrill Middle School	7–8	387	35	0	1	0	97	2	$12,078
NYS Average	N/A	N/A	45	7	20	20	53	7	$15,035
2008 Study Schools: Level-High (Outcome measures: ELA and Math)									
Saunders Trades & Technical Senior High School	9–12	1395	76	3	17	45	31	7	$18,876
South Kortright Central School	PK-12	126	52	0	1	2	95	2	$18,853
Greene High School	9–12	453	43	0	0	1	98	0	$13,161
Warrensburg Junior-Senior High School	7–12	457	38	0	1	1	97	0	$18,947
Batavia High School	9–12	819	30	0	9	2	87	2	$15,550
Huntington High School	8–12	1175	25	7	13	18	67	1	$21,452
Cambridge Junior-Senior High School	7–12	598	25	0	0	1	97	1	$13,812
White Plains Senior High School	9–12	2164	25	11	22	40	35	3	$23,092
Honeoye Falls-Lima High School	9–12	840	7	0	0	1	97	2	$12,782
Gen. Douglas MacArthur High School	9–12	1347	7	2	1	5	90	4	$19,389
NYS Average	N/A	N/A	45	7	20	20	53	7	$16,212
2009 Study Schools: Level-Middle (Outcome measure-Science)									
Jefferson Middle School	5–8	390	69	1	12	7	79	2	$14,632
Johnson City Middle School	6–8	575	46	1	13	6	76	6	$14,975
Armstrong Middle School	6–8	623	19	0	2	2	95	1	$14,026
Boliver-Richburg Middle School High School	6–12	455	38	0	1	0	98	0	$19,191
Geneseo Middle School High School	6–12	540	16	2	3	4	91	2	$14,895
Oliver W. Winch Middle School	6–8	828	14	0	1	1	98	0	$13,191

Table A1. *Cont.*

2005 Study Schools: Level-Elementary (Outcome measures: ELA and Math)	Grade Span	Total Enrollment	F/R Lunch Eligible or Economically Disadvantaged	ELL	African-American/ Black	Hispanic/Latino	White	Other	PPE *
Greene Middle School	6–8	284	38	0	2	0	97	0	$14,446
NYS Average	N/A	N/A	44	7	19	21	52	7	$17,330
2011 Study Schools: Level-Elementary (Outcome measure-ELA and Math)									
Davison Avenue Elementary School	K–4	325	34	8	37	25	30	8	$26,127
Lincoln School	K–6	758	60	15	49	24	21	6	$22,133
Columbus Elementary School	K–5	816	78	31	8	82	8	2	$21,959
Pakanasink Elementary School	K–5	483	51	3	25	31	36	8	$16,758
John F. Kennedy Magnet School	K–5	725	78	55	10	86	3	2	$18,413
Dr. Charles T. Lunsford School 19	K–6	309	98	2	94	3	2	1	$18,956
Centennial Avenue Elementary School	K–5	440	66	30	54	45	0	0	$24,585
Dr. Martin Luther King, Jr., Elementary School	K–5	273	94	11	52	27	11	10	$14,940
Maybrook Elementary School	K–5	235	42	3	15	20	62	3	$15,941
Forest Road Elementary School	K–6	272	17	8	39	17	6	40	$20,483
NYS Average	N/A	N/A	48	8	19	22	50	8	$19,381
2013 Study Schools: Level-High School (Outcome measure-Graduation rates)									
Amityville Memorial High School	9–12	701	39	6	57	29	11	3	$26,032
Brookfield Central High School	9–12	77	45	0	1	0	99	0	$20,712
Downsville Central High School	9–12	85	63	0	1	0	99	0	$40,380
Eastridge High School	9–12	989	46	2	18	12	65	4	$19,406
Otselic Valley Jr. Sr. High School	9–12	148	53	0	0	0	99	0	$22,602
Prattsburgh Central High School	9–12	133	46	0	4	1	95	0	$20,161

Table A1. *Cont.*

2005 Study Schools: Level-Elementary (Outcome measures: ELA and Math)	Grade Span	Total Enrollment	F/R Lunch Eligible or Economically Disadvantaged	ELL	African-American/ Black	Hispanic/Latino	White	Other	PPE *
Elmont Memorial High School	9–12	1307	27	1	78	13	1	8	$18,176
Whitesville Central High School	9–12	86	33	0	0	0	100	0	$23,025
NYS Average	N/A	N/A	49	8	19	22	49	10	$20,410
2015 Study Schools: Levels-Elementary and Middle School (Outcome measures-ELA and Math)									
Catkill Elementary School	PK–5	760	62	3	9	9	72	10	$24,032
Schuylerville Elementary School	K–5	718	31	2	1	3	96	1	$17,884
Fostertown ETC Magnet School	K–5	637	61	11	20	45	28	7	$21,878
Van Rensselaer Elementary School	PK– 6	622	73	8	9	7	63	20	$19,870
Guilderland Elementary School	K–5	548	18	11	5	4	67	25	$17,995
Blue Creek Elementary School	K–6	482	24	6	3	4	68	26	$18,457
NYS Average	N/A	N/A	54	8	18	25	45	11	$21,812
2018 Study Schools: Level-High School (Outcome measures-Graduation rates)									
Alfred-Almond Jr. Sr. High School	7–12	198	42	0	0	1	95	5	$18,497
Crown Point Central School	K–12	77	62	0	0	0	99	1	$21,644
Freeport High School	9–12	2229	66	16	29	64	5	2	$22,314
Malverne Senior High School	9–12	548	51	3	57	22	14	7	$30,539
Maple Grove Jr Sr. High School	6–12	239	30	0	1	1	96	2	$17,992
Port Chester Senior High School	9–12	1436	69	18	6	77	16	2	$19,941
Sherburne Earlville Senior High School	9–12	374	51	0	0	1	98	1	$22,507
NYS Average	N/A	N/A	55	9	17	26	44	12	$23,361

Appendix B. Sunburst Report of Coded Data in NVivo 12 Plus

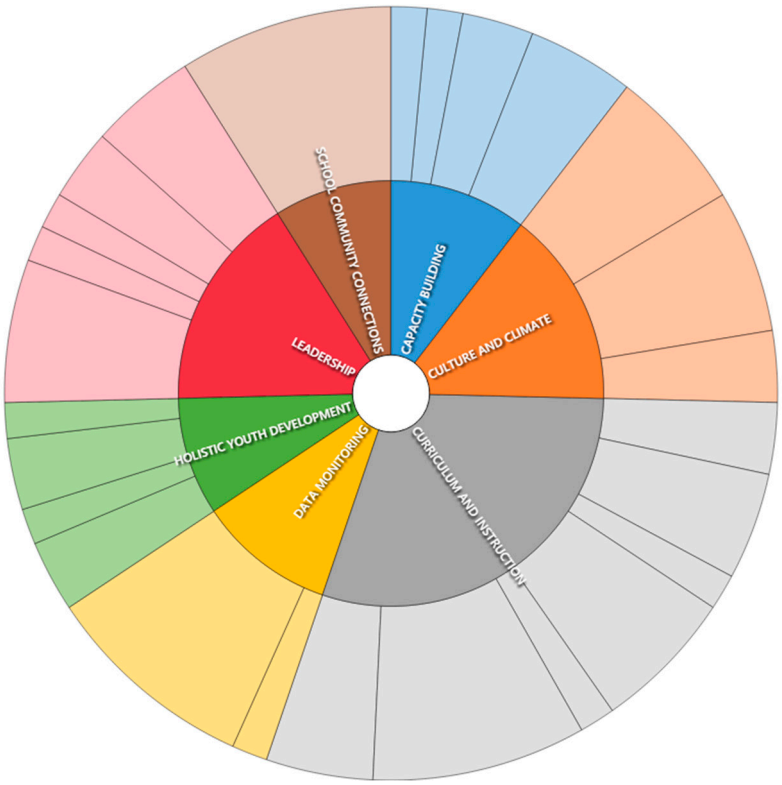

Figure A1. Sunburst Report of Coded Data in NVivo 12 Plus.

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