Illinois State Board of Education

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Darren Reisberg
Chair of the Board

Dr. Carmen I. Ayala
State Superintendent of Education

MEMORANDUM

TO: The Honorable William E. Brady, Senate Minority Leader
The Honorable Jim Durkin, House Minority Leader
The Honorable Don Harmon, Senate President
The Honorable Michael J. Madigan, Speaker of the House
The Honorable JB Pritzker, Governor

FROM: Dr. Carmen I. Ayala
State Superintendent of Education

DATE: December 23, 2020

SUBJECT: 2020 Educator Supply and Demand report

The 2020 Educator Supply and Demand report pursuant to Section 2-3.11c of the School Code [105 ILCS 5/2-3.11c].

The Illinois State Board of Education respectfully submits this triennial report to the Governor, the General Assembly, and institutions of higher education in fulfillment of the requirements of Section 2-3.11c of the School Code [105 ILCS 5/2-3.11c]. This report addresses the relative supply and demand for education staff in Illinois public schools.

Specifically, this report provides information on:

1. the relative supply and demand for teachers, administrators, and other certificated and non-certificated personnel by field, content area, and levels;
2. State and regional analyses of fields, content areas, and levels with an over-supply or under-supply of educators; and
3. Projections of likely high demand and low demand for educators, in a manner sufficient to advise the public, individuals, and institutions regarding career opportunities in education.

Important notes about this report:

1. The **relative supply and demand** for teachers, administrators, and other certificated and non-certificated personnel by field, content area, and levels is addressed in Research Question 1 which analyzes the relationship between preparation program, license and hiring status for different programs (Administrative, CTE, etc.)
2. **State and regional analyses of fields, content areas, and levels with an over-supply or under-supply of educators** is addressed in Research Question 2 which analyzes which license and

endorsement types are most in demand in Illinois overall and by geographic area while also exploring the factors of teacher employment, retention and mobility.

3. **Projections of likely high demand and low demand for educators**, in a manner sufficient to advise the public, individuals, and institutions regarding career opportunities in education is addressed in Research Questions 3, 4, and 5.
    - Research Question 3 analyzes the age distribution of Illinois public educators and how this relates to future demand for educators.
    - Research Question 4 compares Illinois' teacher race/ethnic diversity to its student population.
    - Research Question 5 compares district staff composition to position recommendations in the Evidence-Based Funding Formula.

This report is transmitted on behalf of the State Superintendent of Education. For additional copies of this report or for more specific information, please contact Amanda Elliott, Executive Director, Legislative Affairs at (217) 782-6510 or aelliott@isbe.net.

cc: Secretary of the Senate
Clerk of the House
Legislative Research Unit
State Government Report Center

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FOREWORD

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    b. Research Question 4 compares Illinois' teacher race/ethnic diversity to its student population.
    c. Research Question 5 compares district staff composition to position recommendations in the Evidence-Based Funding Formula.

Questions about this report may be referred to the Data Strategies and Analytics Department of the Illinois State Board of Education 312-814-5561.

2020 Illinois Educator Supply and Demand Report

The Illinois State Board of Education (ISBE) respectfully submits the 2020 Illinois Educator Supply and Demand Report to the Governor, the General Assembly, and institutions of higher education in fulfillment of the requirements of Section 2-3.11c of the Illinois School Code [105 ILCS 5/2-3.11c]. This report is meant to inform the decision making of Illinois' Governor and Legislature regarding the educator workforce and to advise the public and individuals about career opportunities in public education [105 ILCS 5/2-3.11c]. The 2020 report is built around research questions based on input from internal and external stakeholders aimed at elucidating the relative supply and demand of educators in Illinois.

Research Questions

1) What percentage of newly licensed Illinois educators are public school educators in Illinois public school districts within one year of receiving their license?
2) What license and endorsement types are most in demand in Illinois? What license and endorsement types are most in demand by geographic area?
3) What does the age distribution of Illinois public educators indicate about future demand?
4) How does Illinois' teacher race/ethnic diversity compare to its student population?
5) How do district staff compositions compare to the position recommendations outlined in the Evidence-Based Funding formula?

Literature Review

To understand educator supply and demand, it is important to consider the educator pipeline concept. The educator pipeline consists of every step in an educator's career, from educator preparation recruitment to educator retention, constituting supply side factors (Bankert, 2018; Citizens Research Council of Michigan, 2019; Stohr, Fontana, & Lapp, 2018). These steps, in order, are:

- **Educator Preparation Recruitment** – Attracting candidates to careers in education and educator preparation programs.
- **Educator Preparation** – The process of preparing educator candidates and moving candidates through preparation programs.
- **Educator Licensure** – The process of attaining licensure in addition to completing educator preparation, as both are needed to enter the educator workforce.
- **Educator Placement** – The recruitment of educators by schools and districts.
- **Educator Development** – The on-going process of professional development, including developing teachers as the next generation of teacher leaders and administrators.
- **Educator Retention** – Retaining educators in their schools, or districts as applicable, is the final step. In practice, retention and development occur simultaneously after initial placement.

Issues at any step in any specific educator pipeline can contribute to an undersupply of that particular type of educator (e.g., teacher, principal, social worker, etc.)(Bankert, 2018; Citizens Research Council of Michigan, 2019; Stohr, Fontana, & Lapp, 2018). Educator pipelines can be assessed in a statewide frame, district frame, or any context in between. Another supply factor is returning educators, or those who left the educator workforce and returned (Citizens Research Council of Michigan, 2019).

This report will focus on educator preparation, licensure, placement, and retention on the statewide and regional levels. The bulk of educator supply is made up of existing educators, so retention of those educators is crucial; further, replacing teachers comes with significant expenses (Barth et al., 2016). Teacher preparation, followed by progression to licensure and placement, is also important to a stable supply of educators (Barth et al., 2016). Regional analysis is also important given Illinois' context, with the northeast, which includes Chicago, being the major population center in Illinois. Chicago has been shown to be a net importer of educators, particularly from the Chicago suburbs (Lichtenberger, White, & DeAngelis, 2015). However, 80 percent of new Illinois-native teachers, whether primary or

secondary, reported their first teaching assignments to be within 30 miles of the high school they attended (Lichtenberger, White, & DeAngelis, 2015).

On the demand side, student enrollment is a major factor in educator demand, as additional students generally require additional teachers (Barth et al., 2016; Citizens Research Council of Michigan, 2019). Another demand factor is the student-teacher ratio (Barth et al., 2016; Citizens Research Council of Michigan, 2019), as a push by district leadership or the state legislature to decrease this ratio would increase the demand for educators, for example. Educator attrition is another demand factor, as educators who are not retained often need to be replaced (Barth et al., 2016; Citizens Research Council of Michigan, 2019). Attrition is the opposite side of retention, which is a supply factor. Research has confirmed that educator attrition rates vary depending on the setting, with high-poverty, high-minority, and high-EL settings associated with higher attrition (Carroll, 2007; Carver-Thomas & Darling-Hammond, 2017; Dixon et al., 2019; Garcia & Weiss, 2019a; Garcia & Weiss 2019b; Ingersoll et al., 2019). Some evidence also points to attrition varying by subject and program area, with EL teachers associated with higher attrition, for example (Carver-Thomas & Darling-Hammond, 2017).

School funding also weighs heavily on educator demand, as more educators cannot be hired without additional funding (Barth et al., 2016; Citizens Research Council of Michigan, 2019). Additionally, teacher age distributions constitute another demand factor, as an older workforce could lead to more teachers retiring than can be replaced (Barth et al., 2016; Citizens Research Council of Michigan, 2019). Nationally, retirement accounts for less than 20 percent of teacher turnover, including both movers and leavers, and about one-third of leavers, on average (Carver-Thomas & Darling-Hammond, 2017; Citizens Research Council of Michigan, 2019; Ingersoll et al., 2017). Here, movers are teachers that move to a different employer, leavers are those that leave the profession.

Racial/ethnic equity is also a factor in educator supply and demand, as states strive to align student and teacher demographics. Research shows that teacher-student racial/ethnic matching is

associated with higher student performance (Dee, 2004; Egalite, Kisida, & Winters, 2015; Gershenson, Hart, Hyman, Lindsay, & Papageorge, 2018; Gottfried, Kirksey, & Wright, 2019). This is likely due in part to teacher expectations, as race/ethnicity affects teacher expectations, which affects instruction, which affects student performance (DeSimone, 2009; Nieto, 2010; Peterson et al., 2016; Schickedanz, 2003). The role model effect is another reason why some scholars think that racial/ethnic matching is effective, with positive effects observed after just one teacher-student racial/ethnic match (Gershenson et al., 2018).

When racial/ethnic matching is not possible, culturally responsive teaching (CRT) offers a set of values and practices to make all teachers more effective with students of all backgrounds (Ladson-Billings, 1995; Muñiz, 2019). CRT posits that students from every context (race/ethnicity, culture, gender, social class, English proficiency status, disability status, etc.) possess particular strengths, knowledge, and experiences that can be utilized to make instruction more relevant, engaging, and effective (Ladson-Billings, 1995; Muñiz, 2019). CRT has been associated with heightened interest in school, increased attendance, increased persistence, and improved academic achievement (Aronson & Laughter, 2016; Byrd, 2016; Dee & Penner, 2016; Morrison, Robbins, & Rose, 2008; Rodriguez et al., 2004), as well as improved engagement and deeper learning for students (Dysarz, 2018; CFC, 2019; Tatum, 2009).

Finally, comparisons of actual district staffing ratios and the staffing ratios used in the Evidence-Based Funding (EBF) formula can be informative. The EBF staffing ratios are based on best practices and research and comparing these ratios to actual staffing will show if the EBF staffing logic aligns with actual district staffing. However, research on the importance of class size, or student-teacher ratios, shows little consensus. The well-known Student/Teacher Achievement Ration (STAR) project in Tennessee served as a large-scale randomized controlled trial of class size, a study of this program showed modest positive effects for smaller class sizes across early grade students and schools in reading

and math test scores, with greater positive effects for students who spent multiple years in smaller classes (Nye, Hedges, & Konstantopoulos, 2000). While the STAR results are generally accepted, they have not been consistently reproduced in other settings, although studies in other settings were generally limited to less robust research designs due to constraints (Filges, Sonne-Schmidt, & Nielsen, 2018). Researchers have also found that while all students benefit from smaller classes, low-income and minority students are more sensitive to class size, with smaller class sizes showing larger positive effects and larger class sizes showing larger negative effects for low-income and minority students (Nye, Hedges, & Konstantopoulos, 2004; Schanzenbach, 2014; Shin, 2012). Importantly, hiring more teachers is expensive and may not be the most cost-effective method of improving student outcomes (Hanushek, 1998).

Data

The data for this report was sourced from internal ISBE data. Student data came from the Student Information System (SIS) database. Educator employment and demographic data came from the Educator Information System (EIS) database. Educator licensure data came from the Educator Licensure Information System (ELIS) database. Educator preparation program data came from the Annual Program Report (APR) database via the Partnership for Educator Preparation (PEP), a partnership between ISBE and ISBE-approved educator preparation providers. Unfilled position data came from the Unfilled Position Survey (UFP) database. Educators working in public schools, public districts, Regional Offices of Education (ROEs), regional programs, special education schools, special education cooperatives/districts, other state funded entities, miscellaneous payee entities, vocational schools/districts. Educators in early childhood entities are also included if the entity is parented by a public district. Unless otherwise noted, educators in these contexts will be included.

Methodology

Each research question will be answered using descriptive analyses, no causal analyses will be utilized. Inferences from the descriptive analyses will be shared to place the data in context, but no causal relationships are identified.

Results

Research Question 1: What percentage of newly licensed Illinois educators are public school educators in Illinois public school districts within one year of receiving their license?

The progression of teacher candidates from completing preparation to earning licensure to gaining employment in Illinois public schools is crucial. This research question is aimed at exploring that progression. The data used includes all teacher and administrator preparation completers in 2018 and 2019. 2020 data are unavailable as APR data are lagged.

Figure 1.1, 2019 Illinois Educator Preparation Completer Progression

Program	Complet-ers (Total)	Licensed (PEL) within Year	Licensed (PEL) After Year	Licensed (PEL) Prior	Hired within Year	Hired After Year	Hired Prior
Administrative	746	1	0	717	0	1	116
Arts	314	262	0	23	15	242	7
CTE	59	58	0	0	2	56	0
Early Childhood	374	292	1	30	6	275	33
ELA	667	283	0	352	9	261	287
Elementary	1,296	1,160	4	51	32	1,098	52
Foreign Languages	89	69	0	8	6	59	6
Math	247	206	0	26	12	190	16
Physical Education	148	112	2	11	11	96	9
Sciences	201	166	0	12	12	141	20
Social Sciences	305	264	0	14	7	251	12
Special Education	711	539	3	131	53	448	138

Figure 1.1 illustrates a few key patterns in Illinois completer progression. First, except for administrators, ELA, and Special Education, the vast majority of completers are earning their PEL after program completion. This means those completers are potential first-time educators as opposed to

current educators earning subsequent endorsements. The 'hired prior' column confirms this pattern in licensure by showing many educators completing a preparation program were already employed by an Illinois public school.

Second, most newly licensed potential teachers find employment as teachers in Illinois public schools a year or more after preparation completion (see Figure 1.1). This insight is important when considering the amount of time typically needed to prepare and place a new teacher. Except for ELA and special education teachers who have relatively high rates of previously hired teachers, teachers in other subject areas were hired in Illinois at rates around 10 percent within a year of or prior to preparation completion. If hires a year or more after preparation completion are added, hired in Illinois percentages jump into the 80s and 90s across subject/program areas.

Third, almost all newly licensed teachers earn their license within a year of program completion. This insight is also important when calculating the amount of time typically needed to prepare a new teacher. This also suggests that Illinois programs produce completers who are prepared to pass Illinois licensure assessments, if they choose to pursue Illinois licensure.

The patterns highlighted above can also be seen in the 2018 APR data, which can be found in Table 1 in the Appendix.

Research Question 2: What license and endorsement types are most in demand in Illinois? What license and endorsement types are most in demand by geographic area?

Determining which endorsements are in highest demand in Illinois is complex. This research question will be assessed across numerous domains. Those domains include teacher license source, teacher endorsement totals, employed teachers, teacher retention, teacher mobility, unfilled positions, and enrollment projections. These elements will be combined and assessed in a conclusion section.

Teacher License Source. One element in understanding Illinois' educator pipeline is licensure acquisition. In Illinois, educators can earn a Professional Educator's License (PEL) either via an

entitlement awarded by an ISBE-approved educator preparation provider (EPP), or via an ISBE evaluation of the candidate's qualifications. EPPs do not necessarily award entitlements to completers of every program they offer, that is up to the EPP's discretion. In sum, understanding how educators, and teachers in particular, earn their PEL is enlightening when considering educator production.

2.1, Illinois Teacher License Sources by Full-Time Equivalents (FTEs)

	2018	2019	2020
Entitlements	123,847.3	124,965.0	125,915.9
Evaluations	3,644.8	3,782.3	3,854.2
Neither	1,989.5	2,554.3	2,815.7
Total	129,481.7	131,301.6	132,585.8

Figure 2.1 shows that the vast majority of Illinois' active public teachers earn their PEL via entitlements, meaning they are trained in Illinois. A relatively small number of teachers fall into the neither category, meaning whether they earned their PEL via entitlement or evaluation is unknown.

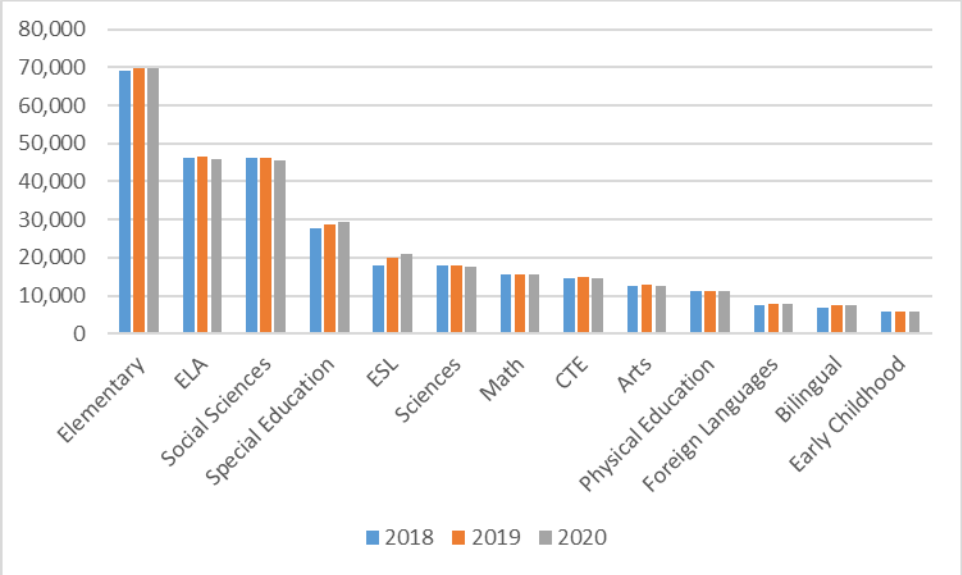
From 2018 to 2020, each geographic area (see Appendix Map 1 for Illinois' geographic areas) saw a slight decline in the percentage of teachers earning their PEL via entitlement. ROEs consistently showed the lowest entitlement rates over the period, ending at 71.7 percent in 2020. Chicago was the next lowest standing at 89.5 percent in 2020, followed by the 'Other' region at 92.7 percent. The remaining geographic areas showed entitlement percentages in the mid-90s in 2020.

The data shows that Illinois EPPs are an effective policy lever in teacher preparation. This is due to the high percentage of Illinois teachers who are prepared in Illinois. Any adjustments to teacher skills, pedagogical knowledge, or anything else related to preparation could be effectively implemented by changing the requirements applicable to Illinois' EPPs. Preparation requirements could be changed in order to adjust teacher production, as was the case in ISBE's removal of the basic skills test licensure requirement.

Educator License and Endorsement Totals. Not only is it important to have enough teachers, it is also important that teachers are spread appropriately across subject and program areas. Subject areas consist of arts, career and technical education (CTE), English language arts (ELA),

elementary (self-contained), foreign languages, math, physical education, sciences, social sciences, and miscellaneous, a catch-all for remaining subjects. Program areas refer to services for specific populations, such as special education, bilingual education, English as a second language, and early childhood, none of which are subjects. Figure 2.2, below, shows Illinois public school teacher counts by subject/program areas. Teachers are included in every category that applies to them based on the licenses and endorsements they hold. This means one teacher can be included in multiple categories.

Figure 2.2, Illinois Public Teacher Counts by Subject & Program Area



As Figure 2.2 displays, teacher endorsements are not evenly distributed across subject and program areas. Elementary (self-contained) is by far the most common category, followed by English language arts, social sciences, and special education, respectively. This data will be compared to unfilled position data to assess the alignment of subject/program area endorsements held by teachers and demand for subject/program areas in unfilled position data in the conclusion section for this research question.

The data underlying Figure 2.2 suggests that teachers tend to hold multiple endorsements, as shown when dividing geographic area endorsement counts by their associated teacher full-time equivalent (FTE) sums. While this calculation is crude, it is useful to identify general differences between geographic areas. Further analysis of this manner showed that Chicago had a relatively lower percentage of teachers holding arts, CTE, or physical education endorsements than other regions, particularly for

CTE and physical education. However, Chicago had the highest rates of teachers holding early childhood, bilingual, English as a Second Language (ESL), foreign language, or math endorsements. The central and southern regions had particularly low rates of teachers with bilingual, ESL, or foreign language endorsements. ROEs had a very high percentage of CTE endorsed teachers, while the 'Other' region had a very high percentage of special education endorsed teachers.

Employed Teachers. The above section displays endorsement totals held by employed teachers, with each teacher potentially holding multiple endorsements. This section will display unique counts of employed teachers in terms of FTEs each year. Teacher totals are comprised of teachers returning to work after a period of absence and those who are either retained from the previous year or are first-time teachers, according to ISBE data. It is important to again note that these numbers include data from more entity categories than are included in the Report Card.

Figure 2.3, Teachers Employed in Illinois by FTE

	2018	2019	2020
Returning Teachers	2,602.0	3,220.2	2,557.2
Retained or New Teachers	126,879.7	128,081.5	130,028.6
All Employed Teachers	129,481.7	131,301.6	132,585.8

The data in Figure 2.3 shows that the vast majority of teachers are retained from the previous year or are new teachers, and a relatively small number of teachers are returners. Overall, teacher FTEs have been slowly rising in Illinois from 2018 to 2020. A regional break down shows that about 5 percent of the City of Chicago's teachers and about 7 percent of the ROE's, or Regional Offices of Education, teachers were returners, where other geographic areas' teacher workforces were around one percent returners.

Overall, Chicago's teacher FTE sum grew 10 percent from 2018 to 2020. The East Central, West Central, Northeast, and Northwest geographic areas' teacher FTE sums held steady, while the Southeast and Southwest areas' teacher FTE sums increased slightly. The ROE and 'Other' areas' teacher FTE sums declined by almost 10 percent each over the period, although their totals were relatively small at around 400 and 200 FTEs, respectively.

Teacher Retention. Retention is another important piece of the teacher pipeline that directly influences teacher supply and demand. From 2018 to 2020, year to year retention rates for all educators in Illinois were consistently 86 percent. When disaggregating teachers by subject/program area, as can been seen in Figure 2.4, a few areas have notably lower statewide retention rates. Special education teachers had by far the lowest retention rates, averaging to 82.2 percent over the three years. The next lowest 3-year average retention rate was bilingual at 84.5 percent. Then there was a jump to elementary at 86.1 percent and ESL at 86.3 percent, respectively. The remaining subject/program areas showed 3-year averaged retention rate at about 87 percent or above.

Figure 2.4, Teacher Retention Rates by Subject/Program Area

	2018 Retention	2019 Retention	2020 Retention
Arts	86.4%	87.2%	87.1%
Bilingual	83.9%	84.8%	84.7%
CTE	88.1%	88.3%	88.5%
Early Childhood	86.7%	86.1%	87.7%
ELA	87.2%	86.8%	87.3%
Elementary	86.1%	85.8%	86.3%
ESL	85.7%	86.6%	86.5%
Foreign Languages	86.7%	87.9%	87.5%
Math	87.7%	87.0%	88.2%
Miscellaneous	88.1%	89.2%	89.5%
Physical Education	88.7%	88.7%	88.5%
Sciences	87.2%	87.3%	87.5%
Social Sciences	87.5%	87.8%	88.0%
Special Education	81.7%	82.0%	83.0%

Figure 2.5, Educator Retention Rates by Geographic Area

	2018 Retention	2019 Retention	2020 Retention
City of Chicago	79.0%	85.1%	82.0%
East Central	85.5%	82.7%	84.4%
Northeast	87.6%	87.5%	87.9%
Northwest	86.0%	86.7%	86.5%
Other	88.2%	81.5%	92.2%
ROE	70.5%	72.8%	72.3%
Southeast	88.0%	86.2%	88.1%
Southwest	89.1%	87.8%	88.3%
West Central	84.6%	82.7%	85.6%

Moving to a geographic area perspective, ROE showed by far the lowest educator retention rate, averaging to 71.9 percent in the period. ROE is much smaller than any directional geographic area, on a scale of hundreds compared to thousands or tens of thousands, which may play a role in its low retention rates. The City of Chicago had the lowest average educator retention rate at 82.1 percent among the directional geographic areas, followed by East Central at 84.2 percent and West Central at 84.3. The remaining geographic areas had average educator retention rates at 86 percent or higher.

Breaking down special education teacher retention by geographic area revealed that ROE had a particularly low average retention rate at 65.9 percent. The City of Chicago (78.6) and the East Central (79.9) also showed 3-year average special education teacher retention rates below 80 percent. The remaining geographic areas showed average retention percentages in the low 80s.

Bilingual teacher retention rates by geographic area highlighted that these teachers are highly concentrated in Chicago and the Northeast, which both showed average bilingual retention rates of 87.7 percent and 83.4 percent, respectively. The East Central and West Central areas both showed a slightly lower average bilingual teacher retention rate of 78 percent. The East Central had about 100 bilingual teachers, while the West Central showed about 50; comparatively, Chicago and the Northeast had 1,500 and 3,500 bilingual teachers, respectively.

A geographic area analysis of ESL teacher retention showed Chicago again had the highest average retention rate, like the bilingual analysis; this analysis excluded regions with only a handful of bilingual or ESL teachers. Chicago and the Northeast had average ESL teacher retention rates of 87.6 percent and 86.4 percent, respectively. Other areas, which had much fewer ESL teachers, had 3-year average retention percentages in the low 80s. The bilingual and ESL data suggest a possible relationship between higher concentrations of these teachers and higher retention rates.

Teacher Mobility. Teacher mobility shows changes in teacher primary work location from the previous school year to the current school year. If a teacher moves primary work locations, they count as a negative (-1) in the previous primary work location and as a positive (+1) in the current work location. Leavers and new teachers are also included; leaving teachers only count as a negative (-1) in their previous primary work location, while new teachers only count as a positive (+1) in their current work location. Leaving teachers include retirees and teachers that left the profession for any reason. New teachers include initial teachers who just completed their preparation or experienced teachers new to Illinois public schools. Teachers who remain in the same primary work location from the previous to

the current school year are counted as neutral (0). As leaving and new teachers are included, districts, geographic areas, and the state can show a net gain or loss of teachers.

Figure 2.6, Illinois Public Teacher Mobility by Geographic Area

	2018 Net Change	2019 Net Change	2020 Net Change
City of Chicago	-289	1,875	-159
Northeast	143	238	626
Northwest	-56	-1	48
East Central	62	59	-15
West Central	-60	16	16
Southeast	7	42	91
Southwest	-80	106	154
ROE	-9	-24	3
Other	14	-23	-3
Total	-268	2,288	761

As can be seen in Figure 2.6, the Northeast consistently shows a sizeable net gain of teachers relative to other geographic areas. Chicago also had a big net gain in 2019, sandwiched in between two years of net losses. The Southwest and Southeast both showed growing net gains over the period. The Northwest, East Central, West Central, ROE, and Other geographic areas saw small net changes in 2018, 2019, and 2020. Generally, the Northeast, and sometimes the City of Chicago, is a destination area for teachers. However, the geographic area net changes are generally quite small compared to the number of teachers in each area.

Unfilled Positions. Public districts report unfilled positions, measured in FTEs, as of October 1st for each year. This data indicates unmet demand for teachers, administrators, and other staff. Unfilled

Figure 2.7, Vacancy Rates for Illinois Teachers by Subject/Program Area

	2018			2019			2020		
	Filled Count	Unfilled FTEs	Vacancy Rate	Filled Count	Unfilled FTEs	Vacancy Rate	Filled Count	Unfilled FTEs	Vacancy Rate
Arts	12,619	94.6	0.7%	12,777	74.3	0.6%	12,531	92.3	0.7%
Bilingual	6,874	119.1	1.7%	7,473	162.9	2.1%	7,558	164.1	2.1%
CTE	14,734	69.9	0.5%	14,775	67.8	0.5%	14,735	83.1	0.6%
ELA	46,147	47.6	0.1%	46,511	73.5	0.2%	45,943	77.8	0.2%
Elementary	68,989	109.0	0.2%	69,914	145.5	0.2%	69,788	163.5	0.2%
Foreign Languages	7,567	79.3	1.0%	7,678	72.6	0.9%	7,682	67.8	0.9%
Math	15,487	75.6	0.5%	15,668	115.0	0.7%	15,748	123.6	0.8%
Physical Education	11,334	87.3	0.8%	11,306	108.1	0.9%	11,198	150.4	1.3%
Sciences	17,888	72.8	0.4%	18,001	100.6	0.6%	17,766	93.2	0.5%
Special Education	27,801	526.3	1.9%	28,716	772.9	2.6%	29,235	753.3	2.5%

teaching positions are reported by subject and program area. While some amount of unfilled positions is natural, these data are useful in identifying trends that might require intervention.

Figure 2.7 displays vacancy rates for the top ten instructional subject/program areas by unfilled FTE sums. To calculate vacancy rates, unfilled teaching position data are paired with filled teacher position counts by subject/program area in public schools and other public affiliated entities. Filled position data are in counts as it is difficult to divide a teacher's FTE into subject/program areas. Together, this data can paint an approximate picture of vacancy rates for teachers by subject/program area.

The most unfilled FTEs by far each year were reported for special education, which also saw relatively high vacancy rates. Only the bilingual vacancy rates approached that of special education. The bilingual program area also saw the second most unfilled FTEs in each year. Comparatively, elementary showed the third most unfilled FTEs in each year while also posting the lowest vacancy rate each year, this was due to elementary being the largest subject/program area by far.

Unfilled FTEs were proportionally distributed across Illinois, with the exception of Chicago, which is primarily comprised of Chicago Public Schools (CPS). CPS accounts for about 16 percent of Illinois' public school teachers, but about 40 percent of Illinois' unfilled FTEs, instructional or otherwise. The Northeast region is by far the largest in terms of enrollment or teacher FTEs, followed by Chicago, the Northwest, the East Central, the West Central, the Southwest, and the Southeast. The Northeast accounted for a disproportionately low percent of unfilled FTEs compared to its share of employed teacher FTEs, the remaining regions were more or less in alignment between their shares of employed teacher FTEs and unfilled teacher FTEs.

Breaking down the 2020 bilingual education, physical education, and special education vacancy rates, the only subject/program areas with vacancy rates over one in 2020, by geographic area showed some variability. For bilingual education, Chicago reported the most unfilled FTEs in 2020, but the

Northwest had a higher vacancy rate. The other geographic areas had at most a handful of unfilled FTEs each. Physical education showed Chicago with the highest vacancy rate at 3.7 percent, while the East Central, West Central, and South East each displaying vacancy rates above two. Turning to special education, Chicago showed a 5.3 percent vacancy rate, followed by West Central at 4.6 percent, Southeast at 3.1 percent, East Central and Northwest both at 3.0 percent, and Northeast and Southwest both at 1.4 percent in 2020.

Enrollment Projections. A cohort survival methodology was used with historical data to project 2021 statewide enrollment by grade, from kindergarten to grade 12. The projections predict a slight increase in overall 2021 enrollment compared to 2020, with the difference in the order of a few hundred students. This would break a downward trend in statewide enrollment from a recent high of 2,073,480 in 2014, according to the 2019 ISBE Annual Report. Individual grade projections can be seen in Figure 2.8.

Figure 2.8, Illinois Enrollment Projections by Grade: 2021

Grade	SY 2020 Enrollment	SY 2021 Projected Enrollment
Kindergarten	130,713	130,037
Grade 1	132,703	136,197
Grade 2	134,179	134,862
Grade 3	137,770	139,746
Grade 4	139,472	138,795
Grade 5	144,022	143,183
Grade 6	148,739	148,953
Grade 7	151,042	151,145
Grade 8	148,434	147,824
Grade 9	156,647	164,776
Grade 10	154,882	149,645
Grade 11	147,547	140,688
Grade 12	148,412	148,982

Additionally, the 2019 ISBE Annual Report shows a steady increase in the percentage of English learners (ELs) from at least 2010 onward, with the number of ELs increasing by over 54,000 from 2014 to 2019. 2020 Illinois Report Card data show that the percentage of students with IEPs declined slightly from 2019 to 2020 to 15 percent, which remains a significant proportion of statewide enrollment.

An important caveat to enrollment's influence on demand for educators is the consideration of pupil to staff ratios. As Illinois districts possess significant control, some districts may decide to decrease certain pupil to staff ratios, thus increasing demand for certain types of educators. The opposite may be

true for districts trying to reduce spending. This means that enrollment alone may not influence demand for educators.

Research Question 2 Conclusions. Tying all these metrics together reveals some common threads. First, special education is in relatively high demand due to relatively low retention rates and relatively high vacancy rates. Second, bilingual education is also in relatively high demand for the same reasons as special education. Additionally, the growing EL enrollment in Illinois is also increasing demand for bilingual teachers. Third, CPS has a particular need for teachers with its relatively low overall educator retention rates and disproportionately high unfilled FTE sums; further, CPS saw a net loss of teachers to other geographic areas in two of the three years observed. Fourth, due to low vacancy rates and the relatively large proportions of teachers endorsed for elementary and ELA, teacher candidates should consider pursuing preparation in higher demand areas like special education and bilingual education instead of these two areas in less demand. Fifth, since most Illinois teachers are prepared in Illinois, preparation providers and the state have great influence in guiding candidates away from low demand subject/program areas and toward high demand subject/program areas.

Research Question 3: What does the age distribution of Illinois public educators indicate about future demand?

Teacher age and teacher years of experience are key variables when it comes to considering long-term patterns in the supply of and demand for educators in Illinois. Analysis of teacher age from 2018 to 2020 reveals a near-normal distribution between ages 20 and 70 (Figure 3.1), with median ages of 40 in 2018 and 2019 and 41

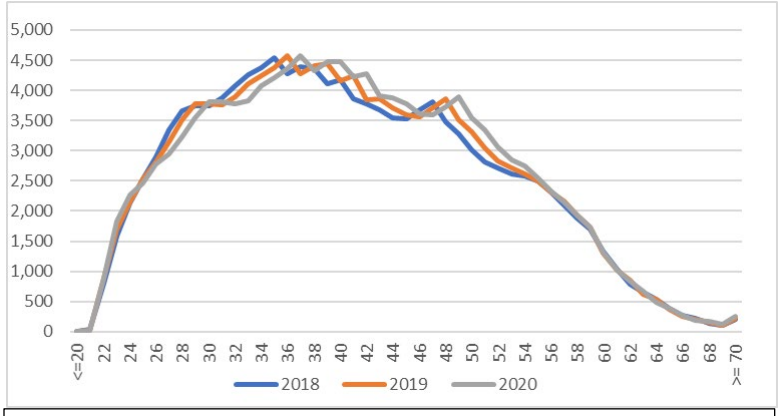


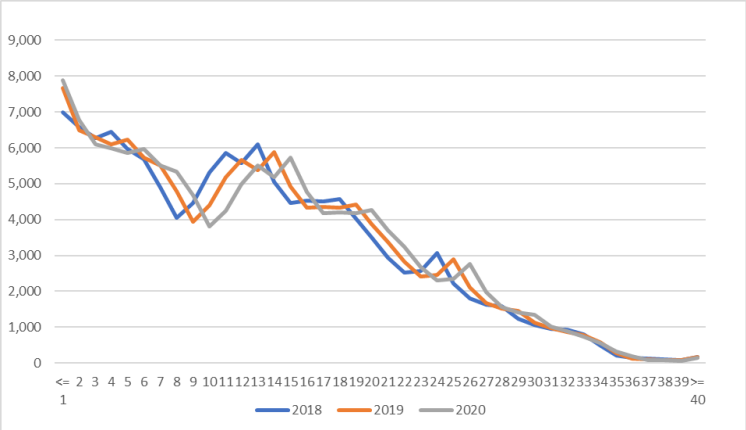
Figure 3.1, Illinois Teacher Age by FTE Sums

in 2020. Modal teacher age increased by 1 each year, going from 35 in 2018 to 36 in 2019 and 37 in 2020. These statistics reveal a workforce that is slowly but steadily aging, with the mean age of teachers slowly climbing from 41.1 years in 2018, to 41.2 in 2019, to 41.4 in 2020.

Principal age also slightly increased across the 3-year period, with a mean around 45 years, although a slight increase in mean and median age is evident in 2020.

Teacher experience by teacher FTE sums skew toward more inexperienced teachers (Figure 3.2), with a median of 12 years of experience in all three years observed. Figure 3.2 shows a dip in teacher experience between 8 and 13 years of experience for 2020, and this dip can be seen in each year of data. This trough roughly lines up with the Great Recession, suggesting that fewer new teachers were hired in that period relative to the other periods examined in this study. However, there are no accompanying bubbles in the teacher age distribution to bring concerns of a disproportionately large number of retirements in any certain year or period. Average teacher experience slowly increased by about 0.1 year in each observed year.

Figure 3.2, Illinois Teacher Experience by FTE Sums



Investigating which subject areas may have older teacher populations is of interest, too. Again, it is important to note that subject/program areas are based on counts where each teacher is included in each category that applies to them. Looking at teacher age distribution by subject area, average teacher age increased from 2018 to 2020 for every subject area except Paraprofessional. It is also interesting to note a slightly younger average teacher age in fields such as Math and Science compared to Social Sciences and Early Childhood, for example. Generally, the average teacher age for each subject/program area was in the low-40s, with the

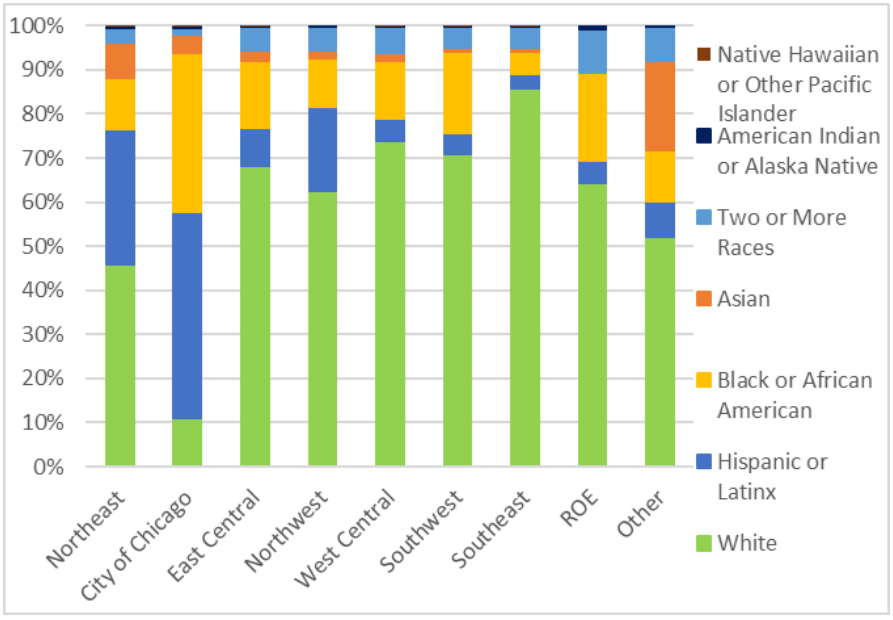
exceptions of administrators, with averages in the mid-40s, and paraprofessionals, with averages in the mid-30s.

Overall, no concerning anomalies or trends were identified that merit immediate action or remedies. At the current rates of aging among Illinois' teacher workforce, it would take decades for this trend to become problematic; as such, teacher age trends should be consistently monitored.

Research Question 4: How does Illinois' teacher race/ethnic diversity compare to its student population?

Illinois teacher race and ethnic diversity distribution across geographic areas of Illinois remained relatively consistent from 2018 to 2020. The most notable trend when comparing teachers to students is that the teacher population is consistently a great deal whiter than the student population. This is especially notable in the area of the City of Chicago where white teachers comprise between 51-52 percent of the workforce, and white students only 10 percent of the student body.

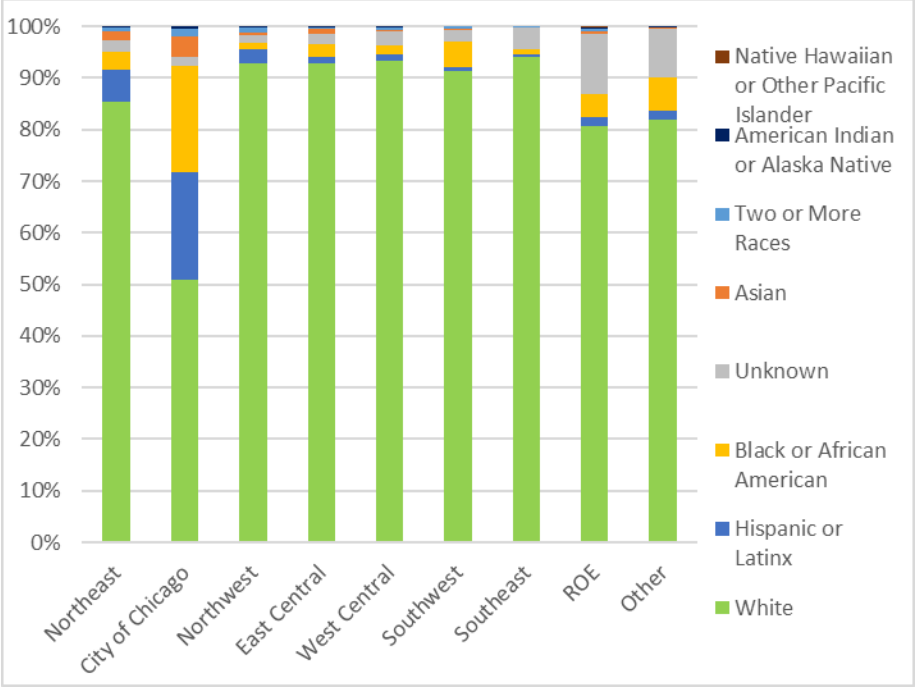
Figure 4.1, Students by Race and Geographic Area: 2020



One geographic area presents an exception to this trend. In the Southeast, white educators comprise approximately 94 percent of the workforce, while the white student population nears that percentage at approximately 86 percent of the student body. In all other geographic areas, white teachers comprise over 80 percent of the workforce, whereas white student percentages range between 46-75 percent across the other nine geographic areas.

The other notable trend in comparing teacher and student demographics is that Hispanic and Latinx students are dramatically underrepresented in the teacher population, despite comprising a range between 3 percent (in the Southeast area) and 47 percent (City of Chicago) of the student body across areas. Only in the Northeast area (around 6 percent) and City of Chicago (around 18-19 percent) does the Hispanic/Latinx teacher population surpass 5 percent. In all other areas, it dwindles near 2.5 percent or lower.

Figure 4.2, Teachers by Race and Geographic Area: 2020



Research Question 5: How do district staff compositions compare to the position recommendations outlined in the Evidence-Based Funding formula?

Illinois' Evidence-Based Funding (EBF) public education funding mechanism is constituted, in part, of research-based formulas that project district-level staffing composition needs while considering district enrollment compositions. This analysis compares EBF-projected district staffing needs to actual district staffing. Importantly, even after three years of EBF investment, 330 districts remain under 70 percent of what EBF would deem adequate funding for a high-quality education, or a district's adequacy target, amounting to $6.8 billion short of full funding statewide (Stand for Children – Illinois, 2020). That is nearly half of Illinois' public districts, which would suggest that staffing levels are also likely below EBF's projections. Due to data limitations, actual staffing could not be calculated for some EBF positions.

Statewide, from 2018 to 2020, the gaps between projected FTEs and actual FTEs shrank for Assistant Principals, Core Teachers, EL Core Teachers, Instructional Facilitator, Principals, and Special Education Core Teachers. Special Education Core Teachers were at least 60 percent above projected FTEs each year, the only position to show actual staffing above projected need all three years. Gaps remained steady for Core Intervention Teachers and Guidance Counselors. Guidance Counselors had by far the largest percent differences between projected and actual staffing at around 95 percent under projections each year. Specialist Teachers went from well over staffed in 2018 to near level with EBF projections in 2020. Gaps grew for Librarians and Nurses.

Figure 5.1, Illinois Percent Differences between EBF Projected FTEs and Actual FTEs

	2018 % Difference	2019 % Difference	2020 % Difference
Assistant Principal	-39.7%	-35.2%	-31.3%
Core Intervention Teacher	-55.9%	-55.1%	-56.0%
Core Teacher	-34.5%	-33.5%	-31.8%
EL Core Teacher	-69.1%	-65.1%	-63.1%
Guidance Counselor	-94.6%	-94.4%	-94.7%
Instructional Facilitator	-74.7%	-69.0%	-65.5%
Librarian	-63.9%	-64.7%	-65.4%
Nurse	-57.5%	-64.3%	-64.2%
Principal	-6.9%	-8.9%	-6.2%
Special Education Core Teacher	60.0%	65.4%	71.9%
Specialist Teacher	19.3%	21.1%	-0.9%

A geographic area lens revealed further insight. Chicago posted the biggest gains in gap closing between projected and actual FTEs from 2018 to 2020 for Assistant Principals, Core Teachers, EL Core Teachers, Guidance Counselors, Instructional Facilitators, and Special Education Core Teachers. Further, all regions saw decreases in percent differences for Specialist Teachers from 2018 to 2020, but Chicago saw the smallest decrease; in 2018, all regions had more Specialist Teachers than EBF projected. East Central made the most progress closing a Core Intervention Teacher gap, Southeast closing a Librarian gap, West Central closing a Nurse gap, and Southwest closing a Principal gap. Overall, all geographic areas had more positions that saw its staffing gap decrease than positions that saw its staffing gap increase, but each area saw cases of growing gaps.

Conclusions

The analyses associated with the research questions in the 2020 Educator Supply and Demand Report have yielded key insights. First, first-time educator preparation completers typically earn their PEL within a year of program completion and find a job in an Illinois public entity a year or more after program completion. Second, special education and bilingual teachers are in comparatively high demand, and CPS in particular showed a higher need for educators in general. Third, there are no trends in observed teacher age or experience data that would suggest a large wave of retirements now or in the future. Fourth, Illinois' teacher and student populations are largely out of alignment when comparing racial/ethnic compositions, with teachers skewing heavily white. Fifth, each geographic area observed large gaps between EBF projected FTEs and actual FTE staffing for most EBF positions, but progress was generally made in closing those gaps in most positions in the years observed.

These insights can help inform state and district level decision making regarding educator supply and demand in Illinois. Understanding the underlying trends in educator supply and demand can lead to better targeted strategies and a more balanced supply and demand. Effective planning can lead to better educational outcomes for Illinois' students, families, and educators.

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Appendix

Definitions/business rules

Appendix Table 1, 2018 Illinois Educator Preparation Completer Progression

Program	Complet-ers (Total)	Licensed (PEL) within Year	Licensed (PEL) After Year	Licensed (PEL) Prior	Hired within Year	Hired After Year	Hired Prior
Administrative	649	6	0	640	0	6	89
Arts	285	237	0	18	5	227	6
CTE	82	76	0	1	7	69	0
Early Childhood	354	283	2	32	12	269	10
ELA	697	304	0	362	7	288	319
Elementary	1213	1065	2	79	30	1013	47
Foreign Languages	68	48	1	12	1	44	5
Math	240	209	1	21	5	197	10
Physical Education	148	128	1	8	7	117	7
Sciences	240	204	2	19	10	189	11
Social Sciences	287	252	0	19	5	241	11
Special Education	822	589	7	186	61	463	197

Appendix Map of Illinois Geographic Areas by ROEs and ISCs