2021 ILLINOIS EDUCATOR SHORTAGE SURVEY

Chronic Teacher Shortages

Part 2: Demand for Teachers by Grade Band

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CHRONIC TEACHER SHORTAGES
PART 2: DEMAND FOR TEACHERS BY GRADE BAND

Shereen Oca Beilstein[1], Tom Withee[2]

ABSTRACT

Teacher shortages are broadly distributed across Illinois for all content areas and grade bands. Yet specific content areas and geographic regions differ in severity of shortages. This white paper, the second of a two-part series, delves into the specific shortages of content area and geographic region by grade band. For each grade band, we examine (1) where the reported unfilled (i.e., job openings that remain vacant) and underfilled (i.e., job openings occupied by under-qualified, substitute, or outsourced hires) teacher positions are geographically located for all content areas; (2) the content areas that comprise the top quintile of un- and underfilled teacher positions; and (3) the breakdown of un- and underfilled teacher positions by hiring method for the most impacted content areas. The findings continue to show that strategic efforts to address teacher shortages should target specific content areas and geographic regions as opposed to blanket policies that impact the whole profession.

CONTEXT

Public school communities across Illinois are currently contending with teacher shortages. District and school administrators are struggling to hire qualified educators who hold the license or certificate required for open positions.[3] Though recent coverage of teacher shortages has intensified due to the COVID-19 pandemic, this issue has persisted in Illinois for decades.[4, 5, 6]

In this two-part series, we examine how the size and specialization of the teacher workforce may not meet the demand of districts and schools by conducting an intersectional analysis of content- and geographic-specific shortages. This analysis is based on the Illinois Association of Regional Superintendents of Schools' (IARSS) Educator Shortage Survey, which includes data on the unfilled (i.e., job openings that remain vacant) and underfilled (i.e., job openings occupied by under-qualified, substitute, or outsourced hires) teacher positions that participating districts reported for the 2021-22 academic year (AY).[7]

Previous reports, including a white paper that led off this series[8], have demonstrated that teacher shortages in Illinois disproportionately affect key content areas, such as bilingual education, English as a second language (ESL), and special education, and geographic regions, including large urban counties (e.g., Cook County) and rural areas (e.g., counties located along the western border and in the south).[9, 10] In this report, the final installment of this series, we extend previous research by considering what content- and geographic-specific teacher shortages look like within grade bands for elementary, middle, and high school separately.

Our goal is to provide stakeholders, policymakers, leadership, and aspiring educators with information that can support decisions about which specializations and regions to prioritize and how to allocate resources.

OUR APPROACH: TOTAL VERSUS PERCENTAGE

We use the same methods in this report as in Part 1, so continuing readers may skip ahead to the Results. We repeat the methods here for new readers. In Fall 2021, 663 of 853 district superintendents (78% response rate) completed the annual IARSS 2021 Illinois Educator Shortage Survey, hence referred to as the Educator Shortage Survey. Responding districts are located across Illinois, but Chicago Public Schools is among those districts that did not participate.[11]

As part of the survey, district superintendents identified (1) the number and type of open teacher positions they posted for the 2021-22 AY as well as (2) how those positions were filled, whether by a qualified hire, an under-qualified hire, a substitute teacher, an outsourced teacher, or if they were left vacant (i.e., an unfilled position). The Educator Shortage Survey defined an under-qualified hire as a licensed educator who is not endorsed for that content area, such as a mathematics teacher teaching science. A substitute teacher was defined as a long-term hire who is not a licensed educator, such as a substitute filling in for a parental leave.[12] An outsourced teacher was defined as a long-term hire who is provided by a third-party contractor, such as a district utilizing a private company's employees as educators. For most of our analyses, we collapse under-qualified, substitute, and outsourced hires (i.e., underfilled positions) with unfilled positions and refer to this aggregated group as **un/underfilled positions**.

Regarding the type of open teacher positions, district superintendents provided un/underfilled data for 25 different content areas across three grade bands (elementary, middle, and high school). For several content areas, related positions were aggregated into the following overarching categories: special education, bilingual education/ESL, and career and technical education (CTE). The Appendix provides an explanation for combining related teacher positions and presents un/underfilled data for the original, disaggregated content areas. For grade bands, the survey defined elementary school as comprising grades pre-kindergarten to 5, middle school as grades 6 to 8, and high school as grades 9 to 12.[13, 14]

To understand how the existing teacher workforce may not meet the specific hiring demands of districts and schools in Fall 2021 for the 2021-22 AY, we measure open teacher positions data—at the district level—in two ways:[15, 16]

1. For the open positions posted, the total number of un/underfilled teacher positions in a specific area.[17]
2. For the open positions posted, the percentage of un/underfilled teacher positions in a specific area out of the total number of open positions posted for this area.[18]

To identify the content areas most impacted by teacher shortages for each grade band, we first rank the content areas by total number and percentage of un/underfilled positions. We then identify the content areas that comprise the top quintiles of un/underfilled positions for both measures. These quintiles serve as the focus of the Results below. We note that teacher shortages currently are pervasive, affecting many content areas.[19] As such, a complete list of teacher shortages by content area and grade band for the 2021-22 AY (e.g., total number and percentage of un/underfilled positions, number of posted positions, number of qualified hires, etc.) can be found in the Appendix.

RESULTS

According to the Educator Shortage Survey, of the open elementary, middle, and high school teacher positions responding districts were attempting to hire for the 2021-22 AY, approximately 15% were reported un/underfilled. More specifically, districts posted 8,926 open teacher positions for all grade bands and all content areas, and 1,376 went un/underfilled. In this report, we provide a detailed analysis of the un/underfilled teacher positions for the elementary, middle, and high school levels separately. For each grade band, using the measures of total number and percentage, we present the following results: (1) where the reported un/underfilled teacher positions are geographically located for all content areas;[20] (2) the content areas that comprise the top quintile of un/underfilled teacher positions; and (3) the breakdown of un/underfilled teacher positions by hiring method for the most impacted content areas.

Elementary School Teacher Shortages

Findings from the Educator Shortage Survey indicate that of the reported 4,200 open teacher positions at the elementary school level, accounting for all content areas, 596 were un/underfilled for the 2021-22 AY. In other words, roughly 14% of the reported open positions districts were attempting to hire went un/underfilled.

WHERE ARE ELEMENTARY SCHOOL TEACHERS NEEDED GEOGRAPHICALLY?

Findings demonstrate that teacher shortages at the elementary school level are widespread, however, the severity of these shortages varies when measured by both total number and percentage. Using total number as a measure indicates greater severity in more densely populated areas (Figure 1; please note that Chicago Public Schools did not participate), mainly Cook (124 - number un/underfilled, 15% - percentage un/underfilled within that county), Peoria (84, 47%), and Will (39, 21%) counties. Using percentage as a measure indicates greater severity in rural areas (Figure 2), particularly along the western border—such as Carroll (4, 100%), Brown (4, 100%), McDonough (2, 100%), Calhoun (1, 100%), and Bond (1, 100%) counties—and in the southeast—such as Clay (1, 100%), Lawrence (3, 100%), and White (1, 100%) counties.[21]

Figure 1. Total number of posted elementary school teacher positions reported un/underfilled.

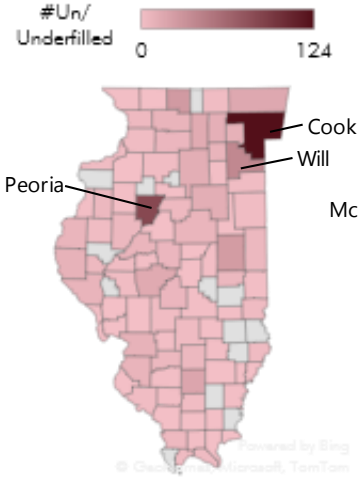
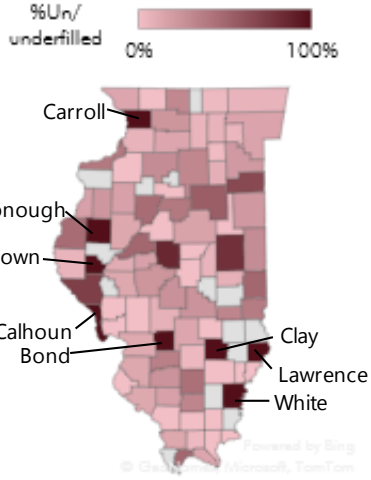


Figure 2. Percentage of posted elementary school teacher positions reported un/underfilled.



IN WHAT CONTENT AREAS ARE ELEMENTARY SCHOOL TEACHERS NEEDED?

Measuring elementary school level shortages by total number and percentage of un/underfilled teacher positions also reveals variation in severity across content areas. According to total number of un/underfilled teacher positions (Table 1), the content areas most impacted by shortages are special

education, self-contained general education, and bilingual education/ESL. According to percentage of un/underfilled teacher positions (Table 2), foreign language, library/media specialists, and CTE are also critical areas where elementary school teachers are needed.

These content areas combined comprise 376 un/underfilled positions, which is approximately 63% of the total number of un/underfilled positions and 12% of the open positions posted across all content areas in elementary schools from participating districts.

Table 1. Top quintile of content areas for elementary school by number of un/underfilled teacher positions.

Content Area	Number Un/ Underfilled Positions	Percentage Un/ Underfilled Positions	Number Posted Positions
Special Education	159	21%	766
Self-contained General Education	119	7%	1,795
Bilingual/ESL	65	17%	385

Table 2. Top quintile of content areas for elementary school by percentage of un/underfilled teacher positions.

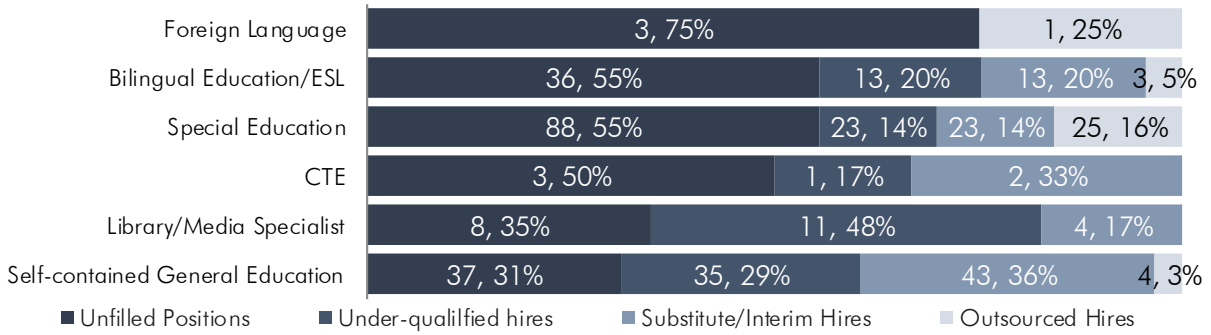
Content Area	Number Un/ Underfilled Positions	Percentage Un/ Underfilled Positions	Number Posted Positions
Foreign Language	4	40%	10
Library/Media Specialists	23	32%	73
Career Technical Education (CTE)	6	26%	23

WHAT IS THE BREAKDOWN OF HIRING METHODS FOR UN/UNDERFILLED TEACHER POSITIONS IN ELEMENTARY SCHOOL?

The Educator Shortage Survey captures detailed information about the different hiring methods districts employed to address un/underfilled teacher positions, which include hiring an under-qualified teacher, a substitute teacher, an outsourced teacher (i.e., these are subsumed under the category of underfilled teacher positions in this report), or leaving the position vacant (i.e., an unfilled teacher position).

For several of the top content areas, notably special education and bilingual education/ESL at 55% each, the proportion of unfilled positions, as compared to underfilled options, is the largest (Figure 3). For library/media specialists, on the other hand, the proportion of under-qualified hires, as compared to unfilled positions and the remaining underfilled options, is the largest at 48%. In addition, special education and foreign language show larger proportions of outsourced positions, as compared to outsourced positions in the other top content areas, at 16% and 25% respectively.

Figure 3. Content area shortages by proportion of un/underfilled hiring methods at the elementary school level.



Middle School Teacher Shortages

At the middle school level, of the reported 2,249 open teacher positions across all content areas, 382 (17%) were un/underfilled for the 2021-22 AY.

WHERE ARE MIDDLE SCHOOL TEACHERS NEEDED GEOGRAPHICALLY?

Using total number of un/underfilled teacher positions (Figure 4) highlights greater need for qualified teachers in similar urban areas as elementary school findings—in Cook (91, 21%), Peoria (35, 34%), and Will (30, 28%) counties—with the addition of Winnebago County (33, 48%). Using percentage of un/underfilled teacher positions (Figure 5) highlights greater need in more rural areas—particularly in the West Central region, such as Brown (2, 100%), Hancock (9, 100%), McDonough (3, 100%), and Pike (8, 100%) counties, and in the Southeast, including Pope County (1, 100%). Again, there is some overlap with elementary school shortages (e.g., Brown and McDonough counties).

Figure 4. Total number of posted middle school teacher positions reported un/underfilled.

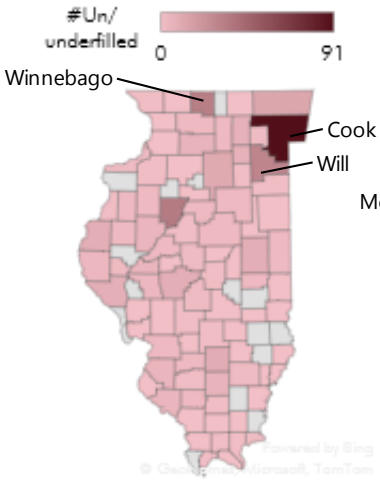
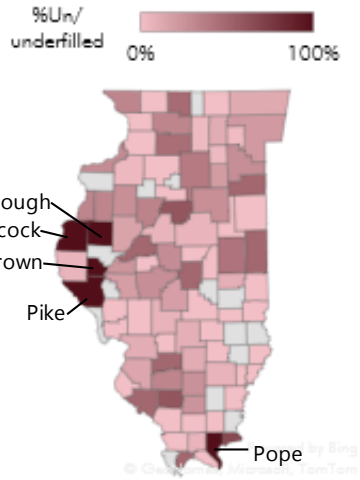


Figure 5. Percentage of posted middle school teacher positions reported un/underfilled.



IN WHAT CONTENT AREAS ARE MIDDLE SCHOOL TEACHERS NEEDED?

According to total number of un/underfilled teacher positions (Table 3), the content areas most impacted by shortages at the middle school level are special education, science, and English Language Arts. According to percentage of un/underfilled teacher positions (Table 4), foreign language, bilingual education/ESL, and self-contained general education are also key areas with staffing challenges.

These content areas combined comprise 235 un/underfilled positions, which is approximately 62% of the total number of un/underfilled positions and 10% of the open positions posted across all content areas in middle schools from participating districts.

Table 3. Top quintile of content areas for middle school by number of un/underfilled teacher positions.

Content Area	Number Un/ Underfilled Positions	Percentage Un/ Underfilled Positions	Number Posted Positions
Special Education	76	18%	411
Science	44	19%	227
English Language Arts	40	14%	278

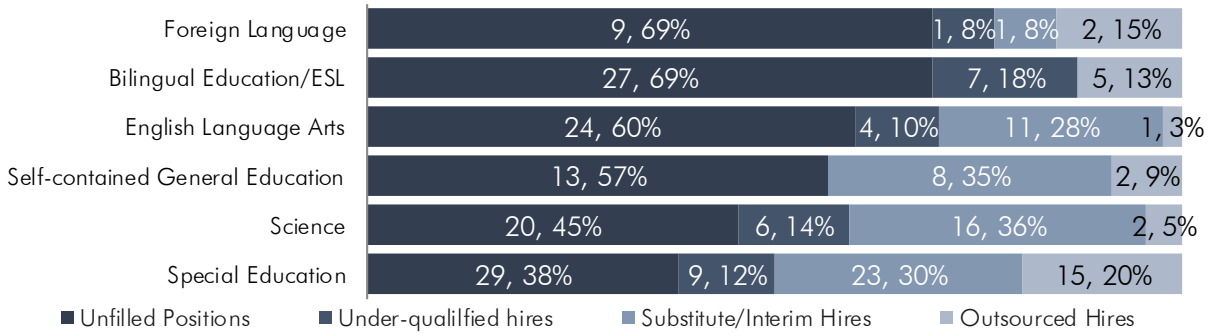
Table 4. Top quintile of content areas for middle school by percentage of un/underfilled teacher positions.

Content Area	Number Un/ Underfilled Positions	Percentage Un/ Underfilled Positions	Number Posted Positions
Foreign Language	13	41%	32
Bilingual /English as a Second Language (ESL)	39	34%	115
Self-contained General Education	23	30%	76

WHAT IS THE BREAKDOWN OF HIRING METHODS FOR UN/UNDERFILLED TEACHER POSITIONS IN MIDDLE SCHOOL?

For many of the top content areas—bilingual education/ESL (69%), self-contained general education (57%), English Language Arts (60%), and foreign language (69%)—the proportion of unfilled positions, as compared to underfilled options, is the largest (Figure 6). Special education, foreign language, and bilingual education/ESL also show larger proportions of outsourced positions, as compared to outsourced positions in the other top content areas, at 20%, 15%, and 13% respectively. Larger proportions of outsourced positions were also found for special education and foreign language at the elementary school level. Additionally, the prevalence of substitute and outsourced hires is greater for many of the top content areas in middle school, as compared to the top content areas in elementary school.

Figure 6. Content area shortages by proportion of un/underfilled hiring methods at the middle school level.



High School Teacher Shortages

At the high school level, of the reported 2,477 open teacher positions accounting for all content areas, 398 (16%) were un/underfilled for the 2021-22 AY.

WHERE ARE HIGH SCHOOL TEACHERS NEEDED GEOGRAPHICALLY?

Total number of un/underfilled teacher positions (Figure 7) indicates greater severity in the urban counties of Will (65, 78%) and Winnebago (43, 56%). Percentage of un/underfilled teacher positions (Figure 8) indicates greater severity in rural counties, and severity at the high school level is much worse in western regions such as Carroll (1, 100%), Brown (2, 100%), Calhoun (1, 100%) counties, and eastern regions such as Macon (3, 100%), Clay (3, 100%), Lawrence (1, 100%), and Saline (2, 100%) counties. There is also some overlap with elementary and middle school shortages (e.g., Brown County).

Figure 7. Total number of posted high school teacher positions reported un/underfilled.

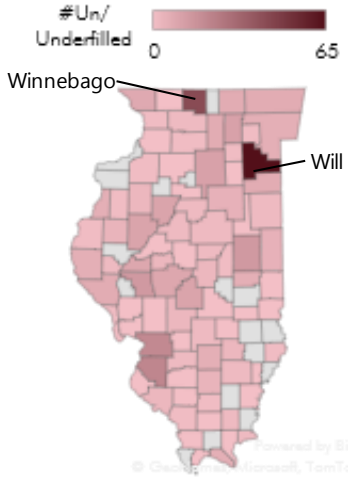
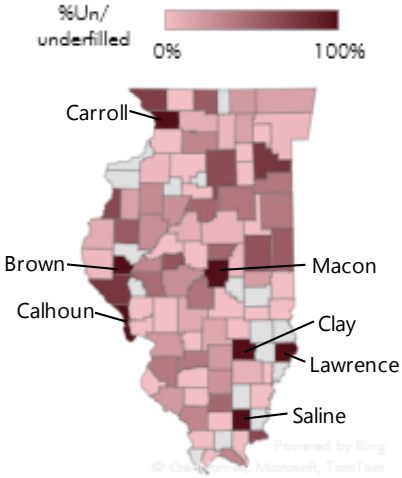


Figure 8. Percentage of posted high school teacher positions reported un/underfilled.



IN WHAT CONTENT AREAS ARE HIGH SCHOOL TEACHERS NEEDED?

According to total number of un/underfilled teacher positions (Table 5), the content areas most impacted by shortages at the high school level are special education, CTE, and mathematics. According to percentage of un/underfilled teacher positions (Table 6), foreign language, library/media specialists, and the arts are also critical areas where high school teachers are needed.

These content areas combined comprise 271 un/underfilled positions, which is approximately 68% of the total number of un/underfilled positions and 11% of the open positions posted across all content areas in high schools from participating districts.

Table 5. Top quintile of content areas for high school by number of un/underfilled teacher positions.

Content Area	Number Un/ Underfilled Positions	Percentage Un/ Underfilled Positions	Number Posted Positions
Special Education	87	20%	441
Career Technical Education (CTE)	57	21%	274
Mathematics	57	17%	345

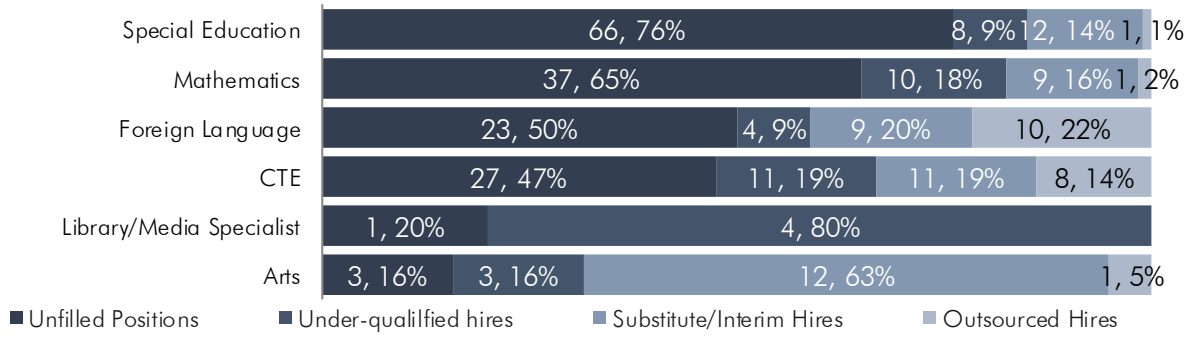
Table 6. Top quintile of content areas for high school by percentage of un/underfilled teacher positions.

Content Area	Number Un/ Underfilled Positions	Percentage Un/ Underfilled Positions	Number Posted Positions
Foreign Language	46	35%	132
Library/Media Specialists	5	28%	18
Arts	19	27%	71

WHAT IS THE BREAKDOWN OF HIRING METHODS FOR UN/UNDERFILLED TEACHER POSITIONS IN HIGH SCHOOL?

At the high school level, a large proportion of open special education (76%) and mathematics (65%) teacher positions are unfilled, as compared to the underfilled options (Figure 9). The percentage of unfilled special education teacher positions (76%), as compared to the underfilled options, is notably higher than related findings at the elementary (55%) and middle school (38%) levels. In addition, both foreign language and CTE are areas with a high proportion of unfilled positions, as compared to the underfilled options, at 50% and 47% respectively. Foreign language again shows a greater proportion of outsourced positions, as compared to outsourced positions in the other top content areas, at 22%. CTE also has a relatively large proportion of outsourced positions, as compared to other top content areas, at 14%.

Figure 9. Content area shortages by proportion of un/underfilled hiring methods at the high school level.



SYNTHESIS OF RESULTS

In this two-part series, we conduct an intersectional analysis of content- and geographic-specific teacher shortages based on district-level employment data from the annual IARSS Educator Shortage Survey. Across both reports in this series, different pictures of the teacher shortage emerge based on the two measures utilized, which were total number and percentage of un/underfilled teacher positions. We contend that accounting for both measures is critical when studying how this complex, systemic issue differentially affects specific districts, schools, and student populations.

Results from the leadoff report demonstrate that the severity of teacher shortages varies across content areas and geographic regions for the 2021-22 AY.[8] Findings from this accompanying report illustrate that the hiring needs for each grade band also vary across content areas and geographic regions. Below, we focus on the current report and summarize key takeaways for the content- and geographic-specific teacher shortages by grade band.

GEOGRAPHIC-SPECIFIC TEACHER SHORTAGES BY GRADE BAND

Geographic analyses of shortage severity show similar patterns for the measures of total number and percentage of reported un/underfilled teacher positions at the elementary, middle, and high school levels. The total number of un/underfilled positions emphasizes the demand urban districts have for qualified teachers, whereas the percentage of un/underfilled teacher positions emphasizes the demand of rural districts.

CONTENT-SPECIFIC TEACHER SHORTAGES BY GRADE BAND

Content-specific analyses of un/underfilled teacher positions reveal similarities across grade bands for both measures (see Table 7, content areas in red). According to the total number of un/underfilled positions, **special education** is the top ranked content area for all grade bands. According to the percentage of un/underfilled positions, **foreign language** is the top ranked content area for all grade bands, and **library/media specialist** is ranked second at the elementary and high school levels. The shortage of foreign language teachers is concerning due to new high school graduation requirements as part of the Education and Workforce Equity Act (see HB 2170), which mandates two years of foreign language starting in the 2028-29 AY.[22]

Content-specific analyses also reveal differences across grade bands (see Table 7, content areas in blue). At the elementary school level, **self-contained general education and bilingual education/ESL** are in the top quintile when measured by total number of un/underfilled positions. At the middle school level, these two content areas are in the top quintile when measured by percentage of un/underfilled positions. These cross-grade band differences suggest that the overall demand—or volume—for self-contained general education and bilingual education/ESL teachers is higher at the elementary school level.[23] By comparison, although the overall demand for teachers in these two content areas is lower at the middle school level, a larger proportion of these open positions are un/underfilled.

In addition, **CTE** is another content area in which cross-grade band differences are found. At the elementary school level, CTE is in the top quintile according to percentage of un/underfilled positions. At the high school level, CTE is in the top quintile according to the total number of un/underfilled positions. These results suggest that while both grade bands are having difficulty hiring qualified CTE teachers, the overall demand for CTE is higher at the high school level. We highlight that computer science is a subset of CTE in these analyses. Looking ahead, it will be

important to monitor shortages in computer science in light of the Education and Workforce Equity Act's new computer science requirements. In particular, this law requires that districts with grades 9-12 offer high school students the opportunity to take at least one computer science course beginning in the 2023-24 AY.

Table 7. Top quintile of content areas for each grade band by number and percentage of un/underfilled teacher positions.

Grade Band	Top Quintile of Content Areas by Number Un/Underfilled Positions	Top Quintile of Content Areas by Percentage Un/Underfilled Positions
Elementary School	**Special Education** *Self-contained General Education* *Bilingual Education/ESL*	**Foreign Language** Library/Media Specialist *CTE*
Middle School	**Special Education** Science English/Language Arts	**Foreign Language** *Bilingual Education/ESL* *Self-contained General Education*
High School	**Special Education** *CTE* Mathematics	**Foreign Language** Library/Media Specialist Arts

We also must note that some of the most impacted content areas identified by percentage of un/underfilled positions have relatively small shortages (e.g., foreign language and library/media specialists). These findings could be due to the low volume of open positions in these areas or measurement error (i.e., not all districts responded to the survey). Obtaining un/underfilled teacher position data from all districts would provide a more robust understanding of how shortages in these content areas and grade bands play out statewide.

ADDRESSING UN/UNDERFILLED TEACHER POSITIONS

The proportion of open teacher positions that remain unfilled, or vacant, as compared to underfilled options, is often higher in certain content areas, including **special education and bilingual education/ESL**. Unfortunately, the repercussions of unfilled positions are unfavorable and include increased class sizes or canceled classes, among other measures. Targeted strategies are needed to boost the supply of teachers in content areas and geographic regions with deep shortages, as many of these shortages impact students who represent historically marginalized communities. In addition to growing the teacher workforce, efforts to support and retain current educators must increase. As part of this effort, IARSS is conducting an educator environment survey to examine the individual- and school-related factors that contribute to attrition and mobility across the state. For specific short- and long-term policy recommendations developed by IARSS, please refer to the 2021 Educator Shortage Report.[24]

APPENDIX

The Appendix contains two sections. The first, Teacher Shortages by Grade Band, provides information about content area shortages by grade band for the 2021-22 AY.

The second, Creating the Categories of Bilingual Education/ESL, Special Education, and CTE, provides information about how we aggregated several related teacher positions from the Educator Shortage Survey into the following three overarching categories: bilingual education/ESL, special education, and CTE.

All of these data were collected as part of the IARSS Educator Shortage Survey in Fall 2021.

Elementary School

Content Area	Number Un/Under-filled	Percentage Un/Under-filled	Number Posted Positions	Number Qualified Hires	Number Unfilled Positions	Number Under-qualified Hires	Number Substitute/ Interim Hires	Number Outsourced Hires
Arts	44	25%	173	129	22	9	11	2
Bilingual Education/ ESL	65	17%	385	320	36	13	13	3
CTE	6	26%	23	17	3	1	2	0
Early Childhood	27	17%	162	135	9	12	5	1
English/Language Arts	14	22%	63	49	5	8	1	0
Foreign Language	4	40%	10	6	3	0	0	1
Health	7	24%	29	22	3	3	1	0
Library/Media Specialist	23	32%	73	50	8	11	4	0
Mathe-matics	17	23%	73	56	7	7	3	0
Music	23	14%	163	140	12	4	5	2
Physical Education	32	17%	188	156	10	6	15	1
Reading	41	19%	217	176	26	9	6	0
Science	10	22%	46	36	4	2	4	0

Content Area	Number Un/Under-filled	Percentage Un/Under-filled	Number Posted Positions	Number Qualified Hires	Number Unfilled Positions	Number Under-qualified Hires	Number Substitute/ Interim Hires	Number Outsourced Hires
Self-contained General Education	119	7%	1795	1676	37	35	43	4
Social Science	5	15%	34	29	0	4	1	0
Special Education	159	21%	766	607	88	23	23	25
Total	**596**	**14%**	**4200**	**3604**	**273**	**147**	**137**	**39**

Middle School

Content Area	Number Un/Under-filled	Percentage Un/Under-filled	Number Posted Positions	Number Qualified Hires	Number Unfilled Positions	Number Under-qualified Hires	Number Substitute/ Interim Hires	Number Outsourced Hires
Art	22	28%	80	58	9	2	9	2
Bilingual Education/ESL	39	34%	115	76	27	7	0	5
CTE	13	16%	79	66	6	0	7	0
English Language Arts	40	14%	278	238	24	4	11	1
Foreign Language	13	41%	32	19	9	1	1	2
Health	8	13%	62	54	3	3	2	0
Library/ Media Specialist	11	29%	38	27	5	5	1	0
Mathe-matics	39	12%	313	274	17	11	10	1
Music	15	13%	112	97	5	2	5	3

Content Area	Number Un/Under-filled	Percentage Un/Under-filled	Number Posted Positions	Number Qualified Hires	Number Unfilled Positions	Number Under-qualified Hires	Number Substitute/ Interim Hires	Number Outsourced Hires
Physical Education	18	11%	167	149	7	4	7	0
Reading	7	9%	80	73	3	1	3	0
Science	44	19%	227	183	20	6	16	2
Self-contained General Education	23	30%	76	53	13	0	8	2
Social Science	14	8%	179	165	4	6	4	0
Special Education	76	18%	411	335	29	9	23	15
Total	**382**	**17%**	**2249**	**1867**	**181**	**61**	**107**	**33**

High School

Content Area	Number Un/Under-filled	Percentage Un/Under-filled	Number Posted Positions	Number Qualified Hires	Number Unfilled Positions	Number Under-qualified Hires	Number Substitute/ Interim Hires	Number Outsourced Hires
Arts	19	27%	71	52	3	3	12	1
CTE	57	21%	274	217	27	11	11	8
Driver Education	9	19%	47	38	6	0	2	1
English/Language Arts	13	6%	232	219	9	2	2	0
ESL	9	16%	55	46	4	5	0	0
Foreign Language	46	35%	132	86	23	4	9	10
Health	11	23%	48	37	6	3	2	0
Library/Media Specialist	5	28%	18	13	1	4	0	0
Mathematics	57	17%	345	288	37	10	9	1

Content Area	Number Un/Under-filled	Percentage Un/Under-filled	Number Posted Positions	Number Qualified Hires	Number Unfilled Positions	Number Under-qualified Hires	Number Substitute/ Interim Hires	Number Outsourced Hires
Music	10	13%	75	65	8	0	1	1
Physical Education	26	7%	363	337	14	4	8	0
Reading	0	0%	12	12	0	0	0	0
Science	36	15%	241	205	24	7	3	2
Social Science	13	11%	123	110	11	2	0	0
Special Education	87	20%	441	354	66	8	12	1
Total	**57**	**21%**	**274**	**217**	**27**	**11**	**11**	**8**

CREATING THE CATEGORIES OF BILINGUAL EDUCATION/ESL, SPECIAL EDUCATION, AND CTE

Below we provide our rationale for combining these categories. In addition, the tables display data for the original, disaggregated positions and the overarching categories for each grade band.

BILINGUAL EDUCATION/ESL

Bilingual education and ESL were combined because both content areas serve English language learners. In addition, both content areas have been historically affected by teacher shortages in Illinois and across the country.[9, 25] Finally, ISBE has enacted a policy that temporarily grants a 3-year endorsement to educators in the process of pursuing an endorsement in either of these fields (see https://www.isbe.net/Pages/Multilingual-Teacher-Resources.aspx).

SPECIAL EDUCATION

The Educator Shortage Survey also gathers data for early childhood special education, special education, and teachers of blind or deaf students. According to ISBE's Educator Licensure, Deaf-Blind specialist is a higher level of endorsement, Learning Behavior Specialist II, which also includes other specializations (e.g., multiple disabilities specialist, behavior intervention specialist, etc.) that were not explicitly asked about in the survey. Survey respondents thus may have included information about these additional specializations under the general category of special education. For the sake of parsimony, we have subsumed deaf-blind and early childhood special education teacher positions under Special Education for this paper.

CAREER AND TECHNICAL EDUCATION

The Educator Shortage Survey gathers data for each of the following CTE specializations: Agricultural Education, Business and Computer Applications, Family and Consumer Sciences, Industrial Arts, Computer Science, and Other. Because these endorsements are all classified as CTE courses, we

combined them into one overarching CTE category (see PEL CTE 5-12 https://www.isbe.net/Pages/Subsequent-Teaching-Endorsements.aspx).

*The Educator Shortage Survey gave district superintendents the opportunity to provide un/underfilled data for open teacher positions that did not fall into any of the 25 content areas under the category of Other. We excluded the category of Other for the current analysis.

DATA FOR DISAGGREGATED AND AGGREGATED (OVERARCHING) CONTENT AREAS

*Aggregated content areas are in bold.

Elementary School

Content Area	Number Un/ Under-filled	Percentage Un/Under-filled	Number Posted Positions	Number Qualified Hires	Number Unfilled Positions	Number Under-qualified Hires	Number Substitute/ Interim Hires	Number Outsourced Hires
Bilingual Education	47	19%	243	196	26	10	8	3
English as a Second Language	18	13%	142	124	10	3	5	0
Bilingual Education/ ESL	**65**	**17%**	**385**	**320**	**36**	**13**	**13**	**3**
Computer Science	5	31%	16	11	3	1	1	0
CTE	1	14%	7	6	0	0	1	0
CTE	**6**	**26%**	**23**	**17**	**3**	**1**	**2**	**0**
Blind or Deaf	7	58%	12	5	1	1	0	5
Early Childhood Special Education	29	19%	149	120	12	5	9	3
Special Education	123	20%	605	482	75	17	14	17
Special Education	**159**	**21%**	**766**	**607**	**88**	**23**	**23**	**25**

Middle School

Content Area	Number Un/ Under-filled	Percentage Un/Under-filled	Number Posted Positions	Number Qualified Hires	Number Unfilled Positions	Number Under-qualified Hires	Number Substitute/ Interim Hires	Number Outsourced Hires
Bilingual Education	20	33%	61	41	14	1	0	5
English as a Second Language	19	35%	54	35	13	6	0	0
Bilingual Education/ ESL	**39**	**34%**	**115**	**76**	**27**	**7**	**0**	**5**
Computer Science	7	27%	26	19	3	0	4	0
CTE: Agriculture	0	0%	7	7	0	0	0	0
CTE: Business/ Computer Applications	4	21%	19	15	2	0	2	0
CTE: Family & Consumer Sciences	2	13%	16	14	1	0	1	0
CTE: Industrial Arts	0	0%	9	9	0	0	0	0
CTE: Other not listed	0	0%	2	2	0	0	0	0
CTE	**13**	**16%**	**79**	**66**	**6**	**0**	**7**	**0**
Blind or Deaf	4	40%	10	6	0	0	1	3
Special Education	72	18%	401	329	29	9	22	12
Special Education	**76**	**18%**	**411**	**335**	**29**	**9**	**23**	**15**

High School

Content Area	Number Un/ Under-filled	Percentage Un/Under-filled	Number Posted Positions	Number Qualified Hires	Number Unfilled Positions	Number Under-qualified Hires	Number Substitute/ Interim Hires	Number Outsourced Hires
Bilingual Education	3	10%	31	28	1	2	0	0
English/Language Arts	13	6%	232	219	9	2	2	0
Bilingual Education/ ESL	**9**	**16%**	**55**	**46**	**4**	**5**	**0**	**0**
Computer Science	3	14%	21	18	3	0	0	0
CTE: Agriculture	4	12%	33	29	1	1	1	1
CTE: Business/ Computer Applications	27	30%	90	63	14	9	4	0
CTE: Family & Consumer Sciences	12	25%	48	36	6	1	5	0
CTE: Industrial Arts	5	9%	58	53	3	0	1	1
CTE: Other not listed	6	25%	24	18	0	0	0	6
CTE	**57**	**21%**	**274**	**217**	**27**	**11**	**11**	**8**
Blind or Deaf	2	25%	8	6	0	1	0	1
Special Education	85	20%	433	348	66	7	12	0
Special Education	**87**	**20%**	**441**	**354**	**66**	**8**	**12**	**1**

ENDNOTES

[1] Shereen Oca Beilstein, Research Specialist, IWERC. Dr. Beilstein is an educational psychology researcher, whose interests span STEM education, developmental psychology, and the learning sciences. At Illinois Workforce and Education Research Collaborative (IWERC), Shereen researches the factors that support recruitment and retention of a diverse, high-quality teacher workforce in Illinois.

[2] Tom Withee, Senior Researcher, Goshen Education Consulting, Inc. Tom Withee is an educational researcher and program evaluator with expertise in STEM education and data visualization.

[3] Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2016). A coming crisis in teaching? Teacher supply, demand, and shortages in the U.S. Palo Alto, CA: Learning Policy Institute. Retrieved from https://learningpolicyinstitute.org/product/coming-crisis-teaching.

[4] Illinois State Board of Education. (2011, 2014, 2017, 2020). Educator supply and demand. Retrieved from https://www.isbe.net/edsupplydemand.

[5] Beilstein, S. O., & Withee, T. (2022). Illinois' persistent educator shortage: Multiple sources point to the same conclusion. Chicago, IL: Illinois Workforce and Education Research Collaborative, Discovery Partners Institute, University of Illinois, and Goshen Education Consulting, Inc. Retrieved from https://iarss.org/wp-content/uploads/2022/01/Persistent_Educator.pdf.

[6] Illinois Association of Regional Superintendents of Schools. (2021). 2021 Illinois educator shortage survey. Retrieved from https://iarss.org/wp-content/uploads/2022/02/IARSS-2021-Educator-Shortage-220207-1.pdf.

[7] The Illinois Educator Shortage Survey, now in its fifth consecutive year, was designed to capture school district superintendents' perceptions of the educator workforce across the state. Conducted by IARSS in collaboration with the Illinois State University Center for the Study of Education Policy and Goshen Education Consulting, the annual survey assesses the impact of the educator supply—focusing specifically on teachers, substitutes, and administration—on day-to-day, district operations such as open positions and class offerings.

[8] Beilstein, S. O., & Withee, T. (2022). Chronic teacher shortages: Part 1—content and geographic areas with high need. Chicago, IL: Illinois Workforce and Education Research Collaborative, Discovery Partners Institute, University of Illinois and Goshen Education Consulting, Inc. Retrieved from https://iarss.org/wp-content/uploads/2022/04/ChonicTeacher.pdf.

[9] Advance Illinois. (2020). Illinois' educator pipeline: Fall 2019 data analysis, challenges, and opportunities. Retrieved from https://www.advanceillinois.org/research-hub/strong-diverse-educator-pipeline.

[10] Illinois State Board of Education. (2020). Educator supply and demand. Retrieved from https://www.isbe.net/edsupplydemand.

[11] In the results, we aggregate district-level data into counties to protect the confidentiality of survey respondents.

[12] We note that this definition of a substitute teacher directly comes from the IARSS Educator Shortage Survey instrument. In this context, a licensed educator refers to someone who has a valid Illinois Professional Educator License. According to Illinois State Board of Education (ISBE) regulations, substitute teachers in Illinois must obtain—at minimum—a substitute license. Please see https://www.isbe.net/Pages/Short-Term-Sub-Teach.aspx for more information about licensure requirements for substitutes.

[13] The Educator Shortage Survey's definitions of elementary, middle, and high school do not directly align with ISBE's definitions, which can be found here https://www.isbe.net/Pages/Professional-Educator-License-Teaching-Endorsements.aspx.

[14] Fall 2021 was the first time the Educator Shortage Survey collected un/underfilled teacher position data by grade band. As such, we could not conduct a trend analysis to examine the extent to which the content areas most impacted by teacher shortages within grade bands are chronic.

[15] Goldhaber, D., Strunk, K. O., Brown, N., Naito, N., & Wolff, M. (2020). Teacher staffing challenges in California: Examining the uniqueness of rural school districts. AERA Open, 6(3), 2332858420951833.

[16] Wilson, A., & Pearson, R. (1993). The problem of teacher shortages. Education Economics, 1(1), 69-75.

[17] Examining the total number of un/underfilled positions captures differences in the relative volume of teacher shortages. This measure can be driven by areas where a high number of open positions are available. These shortages may occur in content areas with a large pool of qualified candidates (e.g., educators with endorsements in elementary education) or geographic regions with high population densities (see, e.g., Advance Illinois, 2020). For example, a large district may have a large shortage of elementary educators, even though there are many educators with that certification, simply due to the number of positions they have to fill.

[18] Examining the percent of un/underfilled teacher positions captures differences in the relative proportion of specific teacher shortages with respect to the overall demand in an area or areas. This measure can detect the magnitude of shortages in areas that are not necessarily driven by a high volume of open positions available. Shortages may occur in content areas with a smaller pool of qualified candidates (e.g., educators with endorsements in computer science) or geographic regions with low population densities (see, e.g., Advance Illinois, 2020). For example, a small district may have only one opening for a computer science teacher, but may have trouble filling that specific need with a qualified candidate due to the overall small numbers of educators with that certification and where such educators may currently live.

[19] U.S. Department of Education. (2021). Teacher shortage areas. Retrieved from https://tsa.ed.gov/#/home/.

[20] We analyzed the location of un/underfilled teacher positions at two levels for each grade band, accounting for (1) all content areas combined and (2) individual content areas in the top quintile for both total number and percentage of un/underfilled positions. We only report the maps of teacher shortages for all content areas because the analyses for individual content areas either yielded similar patterns or contained too few un/underfilled positions to warrant a statewide map.

[21] Not all districts from all counties responded to this survey. Therefore, some measurement error exists in the number and percentage of un/underfilled teacher positions reported in this white paper. For more details about response rates, please refer to the full Educator Shortage report and interactive dashboard.

[22] For more about the Education and Workforce Equity Act (HB2170), see https://ilga.gov/legislation/BillStatus.asp?DocNum=2170&GAID=15&DocTypeID=HB&LegId=117893&SessionID=108&GA=101.

[23] We note that, although self-contained general education has the second highest number of un/underfilled positions at the elementary school level, it ranked lowest in percentage, at 7%. This means that a great majority of the open self-contained general education positions at the elementary school level were filled with qualified teachers. Bilingual education/ESL, on the other

hand, has the third highest number of un/underfilled positions at the elementary school level, and the percentage of un/underfilled positions is 17%. By comparison, districts are experiencing more difficulty staffing open bilingual education/ESL teacher positions than they are self-contained general education positions at the elementary school level.

[24] For IARSS policy recommendations, please see the 2021 Educator Shortage Survey report here: https://iarss.org/2021-educator-shortage/.

[25] Jacobs, S., & Olson, L. (2021). In demand: The real teacher shortages and how to solve them. Washington, D.C.: FutureEd. Retrieved https://www.future-ed.org/in-demand-the-real-teacher-shortages-and-how-to-solve-them/.