



EDUCATOR SHORTAGES IN SPECIAL EDUCATION

Toolkit for Developing Local Strategies

ANALYZING SPECIAL EDUCATION TEACHER SHORTAGES

Data Tool for Practitioners

USER GUIDE

August 2019

User Guide

Analyzing Special Education Teacher Shortages: Data Tool for Practitioners

What: Tool for identifying and visualizing special education teacher shortages across the career continuum

Who: States, regions, districts, and educator preparation programs

Why: Helps teams initiate cross-partner conversations about special education teacher shortage data to reach a shared understanding of challenges and opportunities

How: Excel workbook optimized for Microsoft Windows 7 and 10 with MS Office 2013 and later (also compatible with Microsoft Office for Mac)

The **Analyzing Special Education Teacher Shortages: Data Tool for Practitioners** supports states, regions, districts, and educator preparation programs (EPPs) in identifying and visualizing the development of special education teacher shortages across the entire educator career continuum, from entry into EPPs to entering the classroom to becoming an experienced educator.

This tool fits within the [Educator Shortages in Special Education: Toolkit for Developing Local Strategies](#) suite of resources from the Center on Great Teachers and Leaders (GTL Center) and the Collaboration for Effective Educator Development, Accountability, and Reform (CEEDAR) Center. This user guide is a supplemental document to help teams use the data tool and reflect on the analysis based on their state and local contexts.

The conceptual design of the tool is based on an existing GTL Center resource titled [Insights on Diversifying the Educator Workforce: Data Tool for Practitioners](#), which supports teams as they identify and visualize gaps in the diversity of the educator workforce. These tools can be used together to identify strategies to strengthen and diversify the educator pipeline.

What Is the Data Tool?

The Data Tool is an Excel workbook that supports users in examining special education teacher shortages across the career continuum. State education agencies (SEAs), regional education agencies, districts, and EPPs can use the data tool to do the following:

- Analyze patterns in the development of special education teacher shortages at the state, district, school, and EPP levels.
- Identify crucial points along the educator career continuum where implementing carefully selected strategies can help mitigate special education teacher shortages.
- Promote collaborative, cross-partner conversations about special education teacher shortages that will lead to identifying data sources, examining root causes, and selecting comprehensive educator talent management strategies to address the root causes of shortages.

The Data Tool supports users in examining special education teacher shortages through three distinct lenses. The lenses enable teams to develop a deeper understanding of the nature of these shortages by exploring the problem from multiple data-based perspectives.

Data Tool Lenses

- The **Development of Gaps** focuses on the educator career continuum, charting how the attrition of teachers in special education compares with the attrition of the overall teacher population as they move from preservice to in-service.
- The **Teacher Hiring Funnel** focuses on the educator career continuum specifically for special education teachers, identifying the most significant moments of attrition.
- **Accountability Score Results** identify how special education teacher attrition varies across districts and schools based on outcomes for students with disabilities (SWDs) as measured by Every Student Succeeds Act (ESSA) accountability scores.

For each lens, users can enter their own data into the Data Tool and automatically generate an intuitive visualization to support interpreting the data, exploring potential root causes, and planning next steps. The Development of Gaps and Teacher Hiring Funnel lenses examine the development of shortages across time; the Accountability Score Results lens focuses on examining the intersection between student achievement and teacher attrition.

How Do We Use the Data Tool?

Users enter their own data directly into the Excel workbook, which automatically generates easy-to-understand graphs and charts that visualize shortages across the educator career continuum. Each lens has a dedicated tab in each workbook. When a user enters data, the workbook immediately updates its visuals. In addition, when a user enters data into the Development of Gaps lens tab, the workbook automatically copies that data into the Teacher Hiring Funnel lens tab, saving time and avoiding redundant data entry.

The Data Tool enables users to identify where and when shortages are developing along the educator career continuum, but it does not indicate why those shortages exist. The Data Tool should be a first step for users in a longer, data-rich conversation about shortages and ways to address them. For example, if the Data Tool reveals that special education teacher retention drops markedly between the third and fifth years of teaching, teams should identify other sources of data, such as surveys and exit interviews, to discover the circumstances and reasoning for that data point.

The GTL Center expressly designed the workbooks to be fast, responsive, and easy to understand, regardless of a user's skill level in working with data or spreadsheets. The user-friendly design is intended to help teams initiate conversations about shortages and engage in collaborative problem solving. The analyses in the workbooks provide a starting point for a conversation that should be considered in conjunction with multiple sources of data. This tool should not be used as a substitute for data analysis approaches that require statistically valid and reliable methods.

Who Should Use the Data Tool?

The Data Tool is intended to be used by a collaborative team consisting of SEA, regional, district, school, and EPP representatives. *Because shortages can impact any point of the educator career continuum, it is critical that teams using this tool involve partners from all stages of the career continuum, from attracting to preparing to retaining teachers.* Partners from the state,

local, and EPP levels will be able to contribute different sources of data to the tool to help create a more comprehensive picture of shortages across the career continuum.

Table 1 describes potential sources of data according to partner roles.

Table 1. Role Descriptions and Potential Data Types

Role	Stage of the career continuum	Potential data sources
State	Attracting, preparing, retaining	EPP admissions, licensure test passage rates, teaching hiring, retention
District and school	Attracting, retaining	Teacher hiring, retention
EPP	Attracting, preparing	EPP admissions, certification, retention

Using the Data Tool

This section describes each lens in greater depth:

- Purpose
- Sample visual
- Guidance on how to interpret the data and visuals
- Questions for going deeper

Technical instructions for inputting data appear directly in the Excel workbooks.

About Missing Data

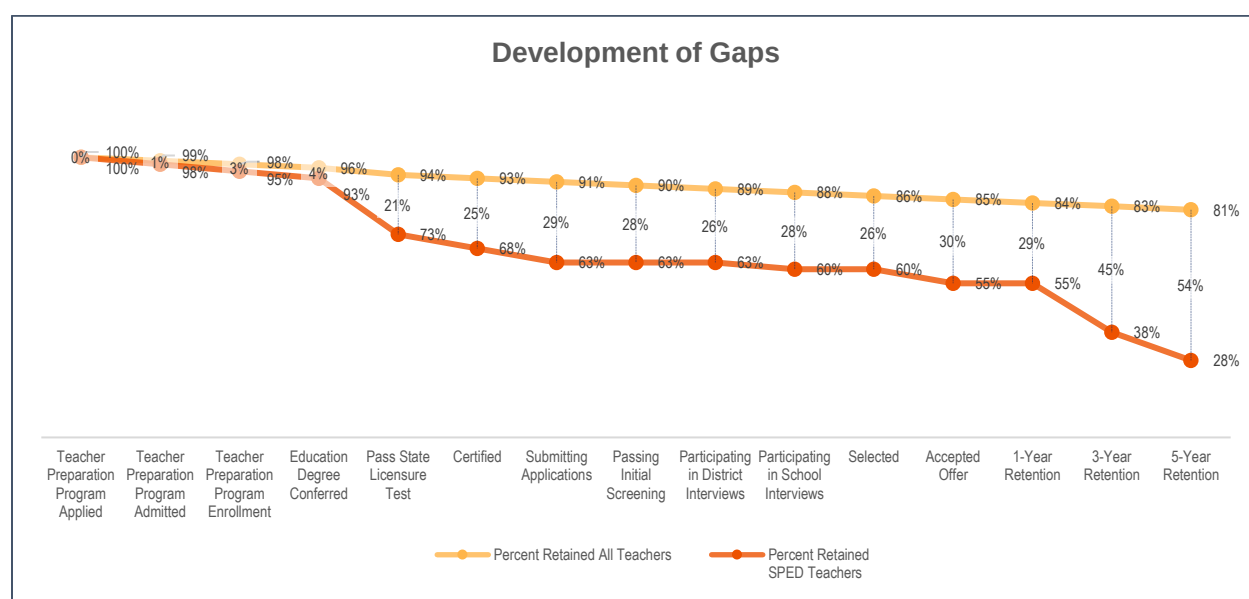
Having data available for each category is not necessary to obtain valuable insights. Although having multiple data points is valuable, the Data Tool will provide useful visuals with limited data and point to open questions that the missing data leave unanswered.

The Development of Gaps Lens

Purpose

The Development of Gaps lens compares the attrition of special education teachers with the attrition of the overall teacher population across the educator career continuum. Beginning with the total numbers of teachers applying to EPPs in a state, region, or district, this chart tracks each step of the career continuum and shows how gaps develop between the retention of special education teachers and the overall teacher population (Figure 1). If data are missing, the visual will display gaps according to the available data.

Figure 1. Development of Gaps Visual



Interpreting the Data

The Development of Gaps lens recognizes that some attrition is to be expected as teachers progress through the career continuum. As teachers transition from their EPPs to completing licensure requirements to entering the classroom, it is natural that some candidates or teachers will drop out of the pipeline for assorted reasons, which may or may not be within the locus of control of state, local, and EPP partners. However, too many candidates leaving the pipeline can lead to teacher shortages. Furthermore, too many candidates in a particular subject area leaving the pipeline can lead to a subject-specific shortage. These scenarios suggest the need for targeted educator talent management strategies to address the root causes of why these teachers are leaving.

Although data entry is based on the numbers of teachers, the Development of Gaps workbook displays percentages of teacher retained across time. Therefore, the initial data point in the chart for “teacher preparation program applied” will be always 100% for both the overall teacher population and the special education teacher population. Data points for subsequent stages of the career continuum will reflect the percentage of the beginning population that was retained. For example, if 50 special education teachers apply to an EPP, 45 are admitted, and 40 become enrolled, then the percentage of teachers retained goes from 100% to 90% to 80%.

This workbook can help teams visualize whether a state, region, district, or EPP is losing special education teachers at a greater rate than the overall population of teachers. For example, if a state is losing special education teachers at the exact rate as it is losing teachers from the general population, then the lines will be identical. If a state is losing special education teachers at a greater rate than it is losing teachers from the general population, then the line for special education teachers will have a steeper negative slope, and the gap between special education teachers and the general teacher population will widen.

Comparing the slopes of the lines for the special education teacher population and the overall teacher population can help teams pinpoint crucial points along the educator career continuum

where the gap between the retention of special education teachers and all teachers is expanding and a subject-specific shortage is developing. To assist with this analysis, the tool produces a prioritization table (see Table 2) that ranks the steps of the pipeline in order of those that widen the gap between special education teachers and the overall population the most.

Table 2. Development of Gaps Prioritization Table

Category	Gap Increase
Pass State Licensure Test	18%
3-Year Retention	16%
5-Year Retention	9%
Certified	4%
Submitting Applications	4%
Accepted Offer	4%
Teacher Preparation Program Admitted	1%
Teacher Preparation Program Enrollment	1%
Education Degree Conferred	1%
Participating in School Interviews	1%
Passing Initial Screening	-1%
Participating in District Interviews	-1%
Selected	-1%
1-Year Retention	-1%

The sample data displayed in Figure 1 and Table 2 show several notable points at which the gap widens between the percentage of all teachers retained and the percentage of special education teachers retained. The first is between having an education degree conferred and passing the state licensure test (18% difference). The second is between the 1-, 3-, and 5-year retention marks (16% and 9% differences). The noticeable decline in special education teacher retention at these points, especially when compared with the retention rate of the overall population, suggests that these are crucial points along the career continuum where the team might consider carefully implementing selected strategies to address special education teacher shortages.

Questions for Going Deeper

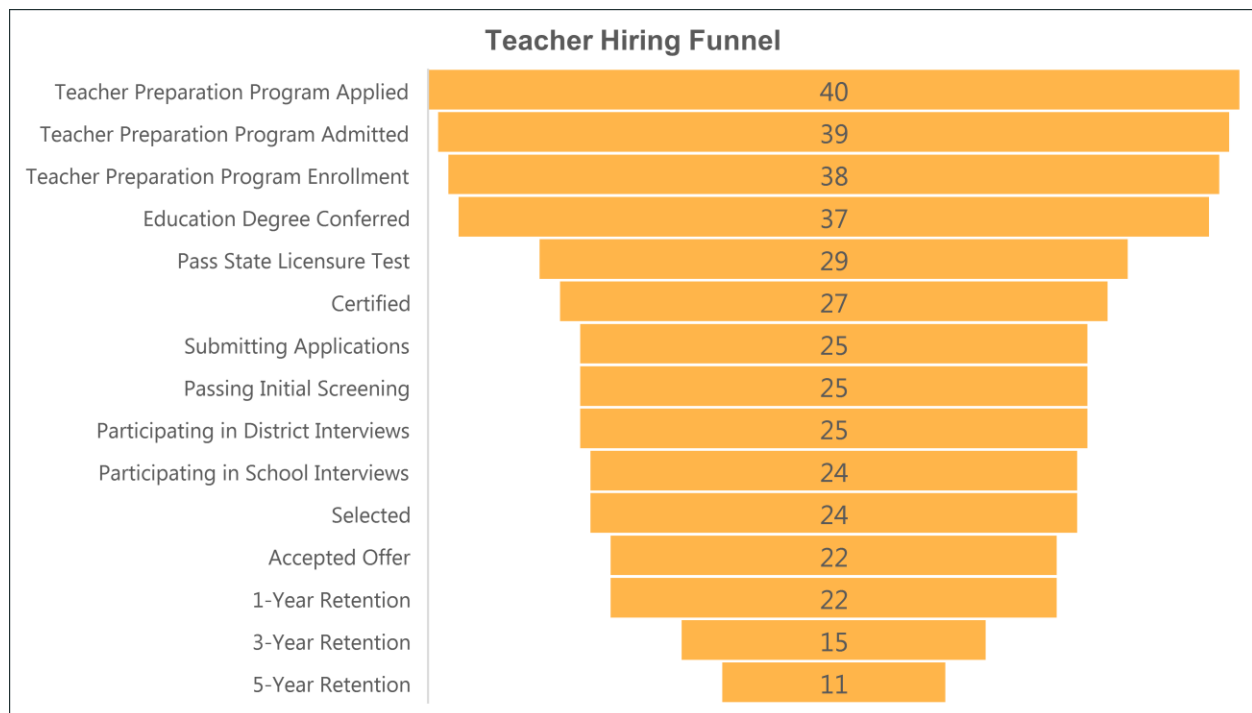
- Where in the pipeline is the gap between special education teachers and the overall teacher population expanding the most?
- What types of strategies may be impactful for closing these gaps at these particular stages of the pipeline?
- Which of the steps at which the gap develops can be impacted most, given your role and scope of control?
- What additional quantitative and qualitative data can be collected (or are already available) to shed light on the reasons for expanding gaps between the retention of special education teachers and the overall teacher population?

Teacher Hiring Funnel Lens

Purpose

The Teacher Hiring Funnel lens focuses on the number—not percentage—of special education candidates or teachers at each step of the educator pipeline. The lens reveals the steps in the pipeline that result in the greatest attrition of special education teachers. The visual display in Figure 2 illustrates the way the total population of special education candidates or teachers shrinks, grows, or remains the same through each step of the pipeline.

Figure 2. Teacher Hiring Funnel Visual



Interpreting the Data

This lens encourages users to question why special education teachers are leaving the pipeline at a given step, regardless of how their attrition compares with the general population of teachers. This perspective enables practitioners to better understand the characteristics of the teacher shortage by bringing special education teachers into the foreground of the data analysis.

To help users identify the steps that represent the greatest points of attrition, this lens also includes a prioritization table (see Table 3), which ranks the steps of the educator pipeline in order of most to least significant loss of special education candidates or teachers.

Table 3. Teacher Hiring Funnel Prioritization Table

Rank	Category	Teacher Loss
1	Pass State Licensure Test	-8
2	3-Year Retention	-7
3	5-Year Retention	-4
4	Certified	-2
5	Submitting Applications	-2
6	Accepted Offer	-2
7	1-Year Retention	-2
8	Teacher Preparation Program Admitted	-1
9	Teacher Preparation Program Enrollment	-1
10	Education Degree Conferred	-1
11	Participating in School Interviews	-1
12	Passing Initial Screening	0
13	Participating in District Interviews	0

Questions for Going Deeper

- Where in the pipeline do most special education candidates or teachers drop out of the profession?
- What types of strategies may be impactful for retaining more special education candidates or teachers at critical points in the career continuum?
- What additional quantitative and qualitative data can be collected (or are already available) to shed light on the reasons special education candidates and teachers are leaving the profession at the steps that the tool prioritizes?

Accountability Score Results Lens

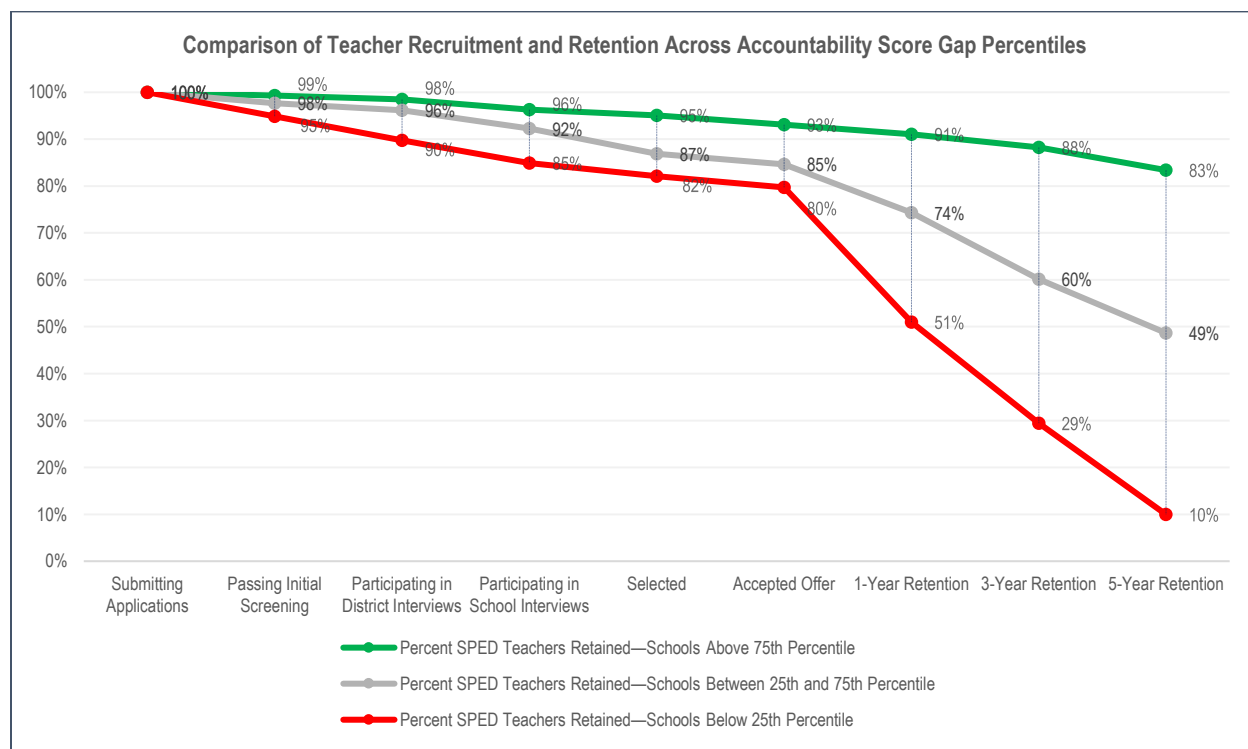
Purpose

Special education shortages are deeply intertwined with issues of equitable access. Unfortunately, chronic shortages of special education teachers have made it difficult to ensure that all SWDs have access to effective and experienced teachers who are able to deliver specialized instruction and personalized learning supports. Lack of access to effective instruction has widened achievement gaps between SWDs and their nondisabled peers, which in turn has made it more difficult to attract and retain special education teachers in high-need settings.

The Accountability Score Results lens identifies how special education teacher attrition varies across districts or schools based on the achievement gap between SWDs and their nondisabled peers. The tool uses ESSA accountability scores to determine achievement gaps for several reasons. First, ESSA accountability score information is easily accessible to the public. Many states publish school or district report cards with these scores. Second, although states were allowed flexibility in designing their accountability systems to align with their priorities, ESSA requires that states establish student performance goals and include a broader measure of student

performance beyond test scores. Third, ESSA maintains a requirement for the disaggregation of student subgroups for accountability purposes, including a subgroup for disability status.

Figure 3. Accountability Score Results Visual



Interpreting the Data

The Accountability Score Entry worksheet automatically calculates the difference between the ESSA accountability scores for the SWD subgroup and the overall student population for each school or district. Schools or districts are then placed into three percentile groups based on the score gaps:

- **Above 75th percentile (green line):** Schools/districts that have the highest scores for SWDs relative to the overall student population and, therefore, the smallest achievement gaps between SWDs and the overall population.
- **Below 25th percentile (red line):** Schools/districts that have the lowest scores for SWDs relative to the overall student population and, therefore, the greatest achievement gaps between SWDs and the overall population.
- **Between 25th and 75th percentiles (gray line)**

Much like the Development of Gaps lens, the Accountability Score Results chart displays percentages of teacher retained across time. Because this analysis focuses on the school and district roles in the in-service portion of the educator career continuum, the first data point is the number of candidates submitting applications to a school or district.

The chart visual can help teams determine if there are differences in the rates at which special education teachers are retained in schools or districts with greater achievement gaps for SWDs

versus smaller achievement gaps. In this example, the group of schools above the 75th percentile (schools with the smallest achievement gaps) experienced relatively little special education teacher attrition; 83% of the teachers who submitted applications were still teaching in their schools after 5 years. The group of schools below the 25th percentile (school with the greatest achievement gaps) experienced much greater special education teacher attrition; only 10% of the teachers who submitted applications were still teaching in their schools after 5 years. Table 4 shows the gaps in retention between the group above the 75th percentile and the group below the 25th percentile.

Table 4. Accountability Score Results Ranking Table

Rank	Category	Gap Increase
1	5-Year Retention	73%
2	3-Year Retention	59%
3	1-Year Retention	40%
4	Accepted Offer	13%
5	Selected	13%
6	Participating in School Interviews	11%
7	Participating in District Interviews	9%
8	Passing Initial Screening	4%
9	Submitting Applications	0%

Note that depending on the level that is chosen for analysis (school or district), the data may or may not account for teachers who change schools within a district, take teaching positions outside of special education, or transition to leadership roles.

Questions for Going Deeper

- Where in the pipeline do most special education candidates or teachers drop out of the profession in schools experiencing larger achievement gaps? How does this compare with schools experiencing smaller achievement gaps?
- Which schools or districts need the most targeted support with recruiting and retaining special education teachers?
- What types of strategies may be impactful for retaining more special education teachers in the highest need schools?
- What additional quantitative and qualitative data can be collected (or are already available) to shed light on the reasons that special education candidates and teachers are leaving the highest need schools?

Next Steps

Completing the Data Tool and obtaining these insights is only the first of many steps that are necessary to address special education teacher shortages in a state, region, or district. Based on the insights that practitioners obtain by using the tool, they should next plan processes for robust stakeholder engagement and root-cause analysis to uncover the reasons for the gaps that were revealed and design strategies to close them. The [*Educator Shortages in Special Education: Toolkit for Developing Local Strategies*](#) from the GTL Center and the CEEDAR Center provides tools and resources that can assist teams with the next stages of root-cause analysis, strategy selection, and implementation.

State teams interested in additional support related to the toolkit should contact the [CEEDAR Center](#).



Copyright © 2019 American Institutes for Research and University of Florida. All rights reserved.

This content was produced under U.S. Department of Education, Office of Special Education Programs, Award No. H325A120003 and the Office of Elementary and Secondary Education Programs, Award No. S283B120021-12A. David Guardino serves as project officer. The views expressed herein do not necessarily represent the positions or policies of the U.S. Department of Education. No official endorsement by the U.S. Department of Education of any product, commodity, service, or enterprise mentioned in this content is intended or should be inferred.