REL SOUTHWEST Regional Educational Laboratory Southwest

Handout: Planning for Survey Data Analysis

Believe and Prepare Survey Data Analysis and Use
Session 4: Survey Closeout and Planning for Analysis

Datasets

This document discusses analyses for data from two Louisiana Department of Education (LDOE) datasets:

- 2020–21 Believe and Prepare Mentor Teacher Survey
- 2020–21 Believe and Prepare Principal Survey

Survey response rates

Calculate survey response rates.

A survey response rate (also called a unit response rate) is the number of eligible sample members who respond to a survey. The survey response rate is important because it is an indicator for how well responses to a survey are likely to represent the target population. Higher survey response rates increase the chance that the results are representative of the target population; lower response rates increase the chance of bias. Bias occurs when those that complete the survey differ in important ways than the population of those eligible to take the survey. Survey response rates are calculated by dividing the number of sample members who responded to the survey by the total number of sample members to whom the survey was distributed then multiplying by 100. When sharing results from the survey, be sure to note the limitations of the results of the survey in light of the response rates.

Survey response rate = (Completed surveys / Surveys distributed) * 100

Exhibit 1. Survey Response Rates

Survey	Number of surveys distributed	Number of survey responses	Survey response rate
Mentor Teacher Survey			
Principal Survey			

In addition to calculating unit response rates, you will want to consider item-level response rates. When examining missing data for each item, LDOE will need to take into account skip patterns so as not to count items that were automatically skipped because they do not apply. If there are items with a high degree of unexpected missing data (for example, more than 15 percent), consider if the item was difficult or confusing for the respondent to answer and what revisions to the item might be made to improve clarity for future survey administrations. When reporting findings of items with high levels of missingness, add appropriate cautions.

Cleaning and reformatting datasets

Save original data sets.

Prior to cleaning or reformatting the datasets, the LDOE should save copies of the datasets in their original formats. This step helps to ensure that any changes made to the datasets during cleaning and reformatting can be undone if necessary. These original datasets can also be used as references when checking data cleaning and reformatting actions.

Convert JotForm data to an Excel file.

JotForm collects responses for each question in the same column. The data can be saved in Excel with responses in separate columns which is needed for analysis.

Select **Data** > **Text to Columns**

In the **Convert Text to Columns Wizard**, select **Delimited** > **Next**

Select the **Delimiters** for the data (JotForm uses **semi-colons or Other Ctrl J** for hard returns) > **Next**

Select the **Destination** in the Excel Worksheet where you want the data to appear

Select **Finish**

Rename variables if using a statistical software package other than Excel.

If LDOE chooses to conduct the analyses using a statistical software package other than Excel, LDOE may need to rename the variables to adhere to limits on variable name length and format. If this is done, it is recommended that variables be renamed using the survey name and item number (e.g., MTQ1 for item 1 on the mentor teacher survey). If LDOE conducts the analyses in Excel, LDOE may not need to rename the variables, but may choose to.

Recode response options.

Responses for each survey item are stored as text. LDOE may choose to recode all response options to be numeric for ease of use. (These values are on the survey item responses in the accompanying handout.) However, only the items for which you will calculate average values for the item or averages across items within a scale must be recoded to numeric values. To do this, LDOE will need to recode response options from text values to numeric values (e.g., 0, 1, 2, 3, 4, 5). If using a statistics package, this can be done using an *if then* sequence (e.g., if q1= "*Mentor teacher training only*" then q1=1; else q1=0). If using Excel, this can be done using Find and Replace or logical functions (e.g., =IF (OR(G1="Undergraduate resident", H1="Undergraduate resident", I1="Undergraduate resident"),1,0).

Look at all item response frequency distributions as a quality check.

LDOE should examine response distribution frequencies for each item variable to verify that recoding was performed correctly and identify any problems that need to be resolved. Check that there are no variable values outside the range of expected responses and examine the amount of missing data for each item. If there are unexpected values, LDOE should revisit the recoding procedures and refer to the saved datasets to see if the out-of-range values are results of data cleaning and reformatting or were in the original datasets. If the errors occurred during data cleaning and reformatting, LDOE should undo the data cleaning and formatting steps that led to the errors and revise the process.

Analyses

Align analysis strategy to research questions.

Next, LDOE should closely examine the survey items that relate to each research question and determine an analysis approach. Consider what kind of analysis is appropriate given the type of data available.

- Create *frequency and percentage distributions* to answer questions about how many or what percentage of respondents gave certain responses (look at skip patterns and consider carefully what denominator should be used for each calculated percentage).

- Calculate an *average* response option value across a single item, or across averages of multiple items (averages are only appropriate for items with response options that are ordered and can be assumed to have equal distance between each point: for example, averages can be calculated for the "not at all useful to very useful" or "very positive to very negative" scales, but not for the "more than once a week to never" scales).

- Examine text responses to "open-ended" or "other specify" variables. For survey items that include "Other" response options for which respondents may specify additional information, responses will need to be coded and summarized. In some instances, there will be enough similar responses to create an additional response option to include in the graph. For example, if a number of mentor teachers (for example, more than 10) indicate that think mentees need

the most support in an area not included in the response list for item 8 on the Believe and Prepare Mentor Teacher Survey, LDOE may wish to consider including that area as a new category. In other instances, the responses will be disparate enough that they cannot be combined. When the responses cannot be combined, consider how to summarize the other responses. Finally, there are other instances in which upcoding is appropriate. Responses typed into the "Other" response box may be the same or very similar to one of the response options provided on the survey. In this case, LDOE should recode the "Other" response match the response option included on the survey.

The research questions are shown in exhibit 2. Examine the survey items related to each research question and add notes to guide your analyses (the first few have been drafted as an example).

Exhibit 2. Planning analyses for each research questions

Research questions		Items	Analysis notes
Teacher Survey			
T 1	During which years did mentor teachers attend the mentor training?	2	*Run frequency and percentage distributions of item 2.*
T 2	What positions did mentor teachers hold in their schools during the 2020/21 school year?	3, 3a	*Run frequency and percentage distributions of item 3. Examine "other specify" text in 3a.*
T 3	What percentage of mentor teachers had mentees during the 2020/21 school year?	4, 6	*Run frequency and percentage distributions for item 4. The percentage denominator will be all survey respondents who attended training (see skip related to item 1). Look at frequency and percentage distributions for item 6.*
T 4	On average, how many mentees did mentor teachers serve during the 2020/21 school year?	5	*Run average of values for item 5. If there are any "10+" values, calculate median rather than mean. Consider running as percentages (e.g., 50% had 1 mentee, 25% had 2 mentees and 25% had 3 or more mentees).*
T 5	(a.) What are the characteristics of mentor teachers who had mentees during the 2020/21 school year? (b.) In which school systems are mentor teachers located?	20, 20a, 26, 27, 28, 28a, 29, 30	
T 6	For what reasons did mentor teachers choose to fulfill the role?	19	

Research questions		Items	Analysis notes
T 7	(a.) To what extent did mentor teachers interact with their mentees during the 2020/21 school year? (b.) In what types of activities did mentor teachers engage with their mentees during the 2020/21 school year?	18, 7a–7j	
T 8	In what areas do mentor teachers believe mentees need the most support?	8a–8h	
T 9	(a.) What types of support did mentor teachers receive during the 2020/21 school year? (b.) Do mentor teachers feel they received enough preparation and support to provide mentoring to Believe-and-Prepare teachers?	9, 10, 11, 12, 13, 14, 15, 16a–16f	
T 10	What challenges did mentor teachers face during the 2020/21 school year?	17a–17i	
T 11	How useful did mentor teachers perceive the training to be?	21a–21f	
T 12	Are mentor teachers making progress toward obtaining their Ancillary Certificates?	22, 23, 24, 25	
	Principal Survey		
P 1	(a.) What percentage of principals had teachers participate in mentor teacher training only, content leader training only, or mentor teacher and content leader training during the 2017/18, 2018/19, 2019/20, and 2020/21 school years? (b.) On average, how many teachers per school participated in mentor teacher training work during the 2020/21 school year?	1, 2	
P 2	(a.) What are the characteristics of mentor teachers who had mentees during the 2020/21 school year? (b.) In which school systems are mentor teachers located?	23, 24, 25, 26	

Research questions		Items	Analysis notes
P 3	(a.) What percentage of principals had undergraduate or student teachers working at their schools during the 2020/21 school year? (b.) On average, how many undergraduate residents or student teachers per school were working in the 2020/21 school year?	3, 4	
P 4	How frequently did principals and school leadership staff provide support to mentor teachers during the 2020/21 school year?	5, 6, 7	
P 5	How frequently did principals observe mentor teachers performing mentorship activities during the 2020/21 school year?	8a–8i	
P 6	What challenges do principals experience in supporting mentor teachers in their schools?	9a–9j	
P 7	In what areas do principals believe mentees need the most support?	10a–10h	
P 8	What are principals' perceptions of the impact that mentors are having on the performance of teacher residents?	11, 12, 13, 14	
P 9	What are principals' perceptions of the roles and performance of content leaders in their schools?	15, 16, 17, 18, 19, 20, 21, 22	

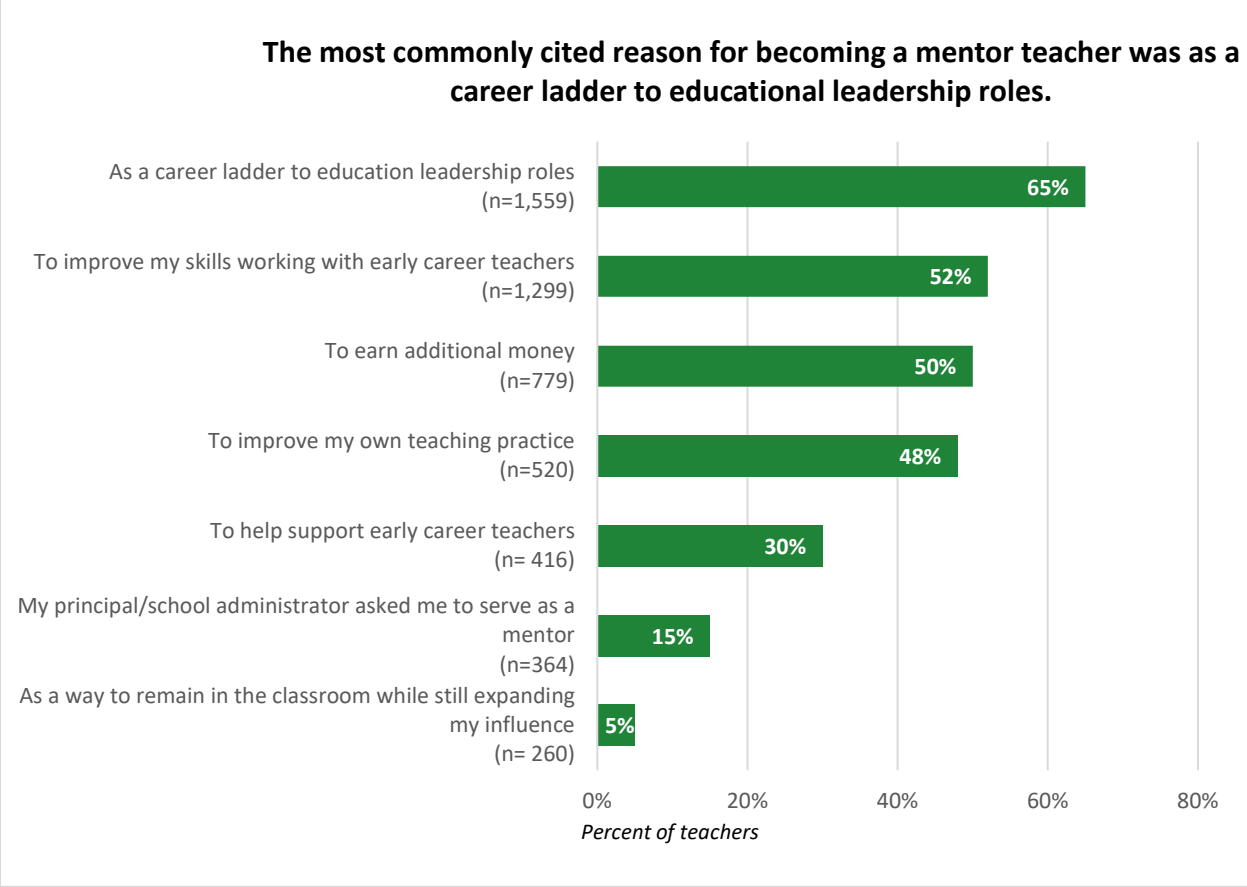
Data display examples

Consider how to present the findings with graphical displays.

All items' frequency and percentage distributions can be displayed in a table and key findings can be highlighted in figures with the main take-away messages as figure titles. Below, we use hypothetical data to provide examples of different kinds of graphical displays. All example graphs were created using Excel.

Example 1: Descending bar graph[1]

Mentor teacher survey item 19 asks respondents to select all responses that apply to the question, "Why did you decide to become a monitor teacher?" A descending bar graph can be used to show the results for this type of item with responses ordered according to how often they are selected.

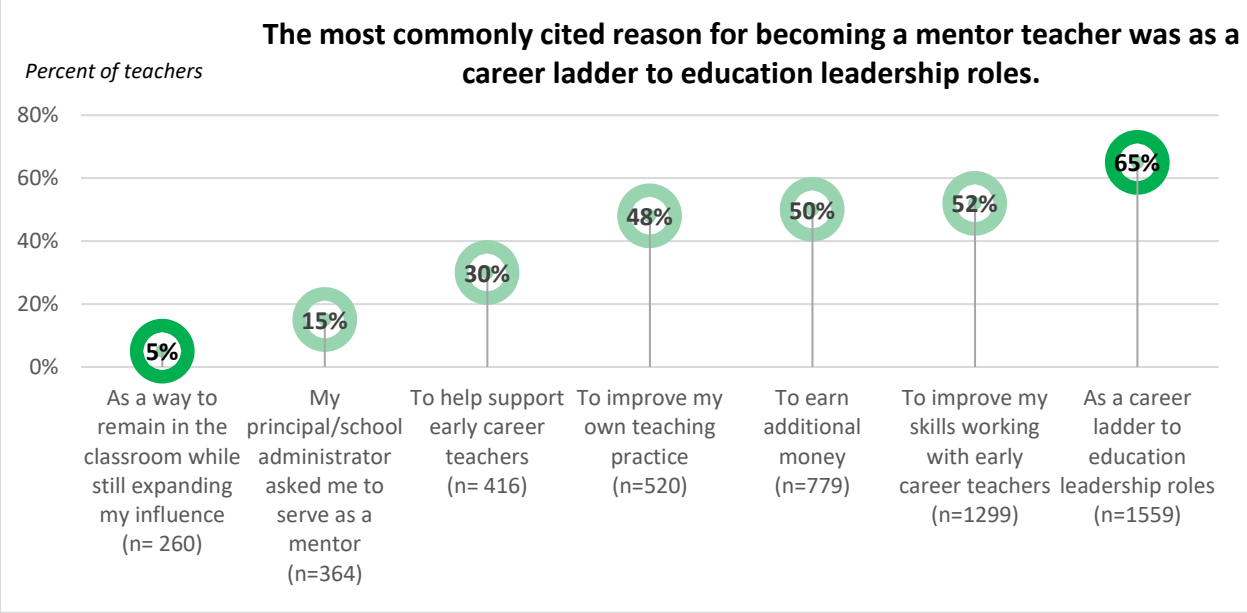


Source: Believe and Prepare Mentor Teacher Survey. Author-created data.

[1] Bar graphs like the ones used in example 1 and example 3 can be created in Excel. https://support.microsoft.com/en-us/office/present-your-data-in-a-column-chart-d89050ba-e6b6-47de-b090-e9ab353c4c00.

Example 2: Vertical lollipop graph[2]

Items like mentor teacher survey item 19 can also be displayed in a vertical lollipop graph. This includes the same information as example 1 above in a different format.



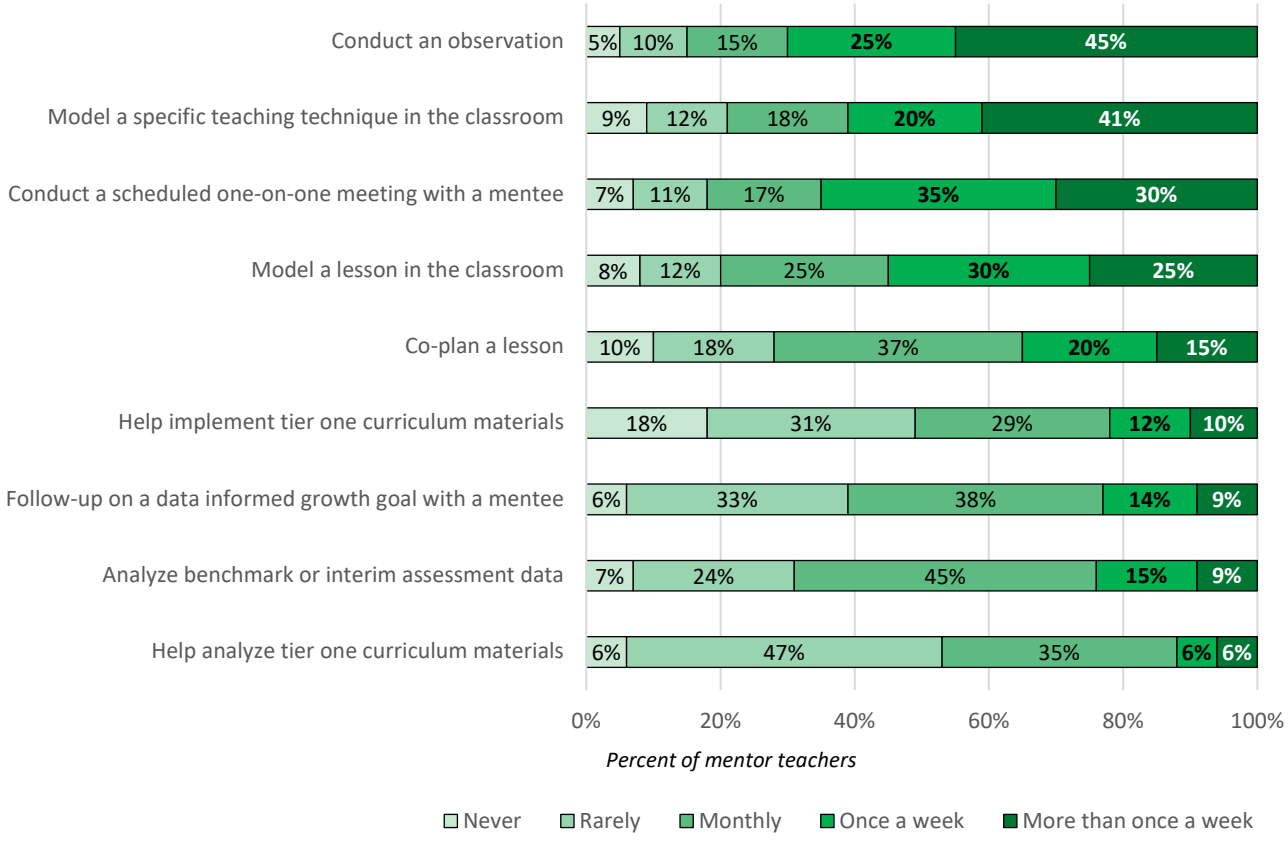
Source: Believe and Prepare Mentor Teacher Survey. Author-created data.

[2] Instructions on how to create a lollipop graph (example 2 and example 6) in Excel are found here https://stephanieevergreen.com/lollipop/.

Example 3: Horizontal stacked bar graph

Survey item 8 on the principal survey asks respondents to select the frequency (from "never" to "more than once a week") the typical mentor performs a series of tasks during the 2020-2021 school year. A stacked bar graph will show the percentage of responses given for each category for each item in the set. Items within the set can be ordered. Here, they are ordered by the percentage of respondents that selected more than once a week. Depending on the message you want to highlight, you could order differently (for example, by the top two categories together indicating at least once a week). This type of graph could also be used to compare responses on a single item for different subgroups (for example, a bar for each of the four mentor teacher grade spans from item 27 with each bar showing the percentage distribution of each of the subgroup's responses about how often they meet with their mentees from item 18).

More than 40 percent of principals report that mentor teachers conduct observations and model specific teaching techniques more than once a week.

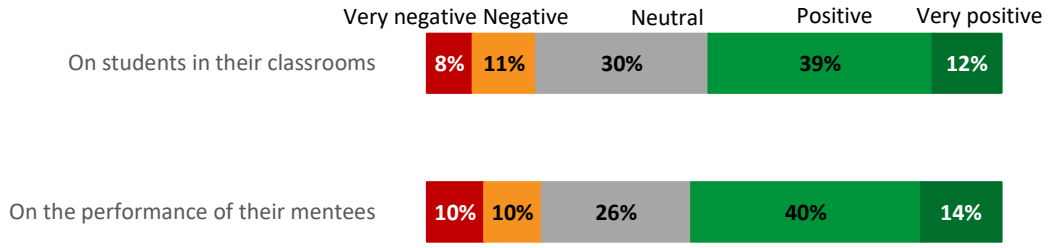


Source: Believe and Prepare Mentor Teacher Survey. Author-created data.

Example 4: Diverging stacked bar graph[3]

Items on the principal survey ask principals to rate the impact (very positive to very negative) that mentor teachers are having on the performance of their mentees (item 11) and on students in their classrooms (items 12). Diverging bar graphs are a good method for comparing two items with the same response options. Here the line between neutral and positive is aligned for the two bars.

Most principals believe that mentor teachers are having positive impacts on their mentees and students in their classrooms.



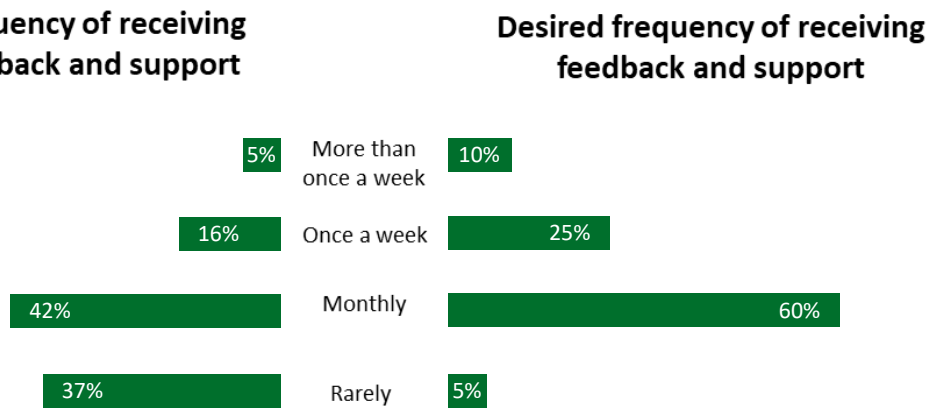
Source: Believe and Prepare Principal Survey. Author-created data.

[3] Diverging stacked bar graphs can be created in Excel (see https://stephanieevergreen.com/diverging-stacked-bars/).

Example 5: Back-to-back graph[4]

Mentor teachers are asked "How frequently HAVE YOU RECEIVED feedback or support from a school leader or district-based administrator in your role as a mentor teacher during the 2020/21 school year?" (item 10) and "In general, how frequently during a school year WOULD YOU LIKE TO receive feedback or support from a school leader or administrator in your role as a mentor teacher?" (item 11). To highlight the differences between these two related items, you may want to construct a back-to-back graph.

Mentor teachers reported receiving less feedback or support than they would like to receive.



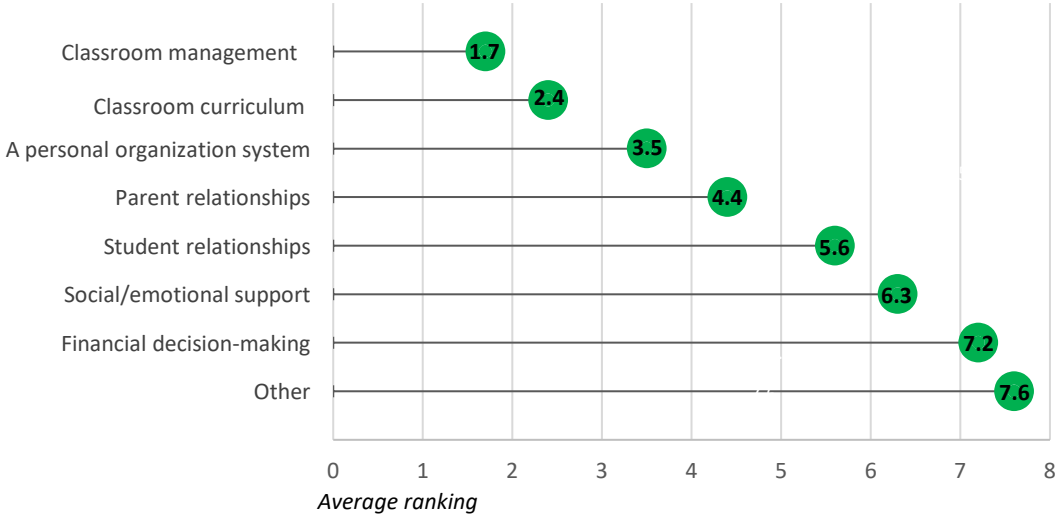
Source: Believe and Prepare Mentor Teacher Survey. Author-created data.

[4] Back-to-back graphs can be made in Excel (see https://stephanieevergreen.com/making-back-to-back-graphs-in-excel/).

Example 6: Horizontal lollipop graph

Item 8 on the mentor teacher survey asks respondents to rank order eight options (including "other") from 1 to 8 indicating areas mentees need the most support (1) to least support (8). You can show the percentage of responses that were selected in each of the ordinal rankings (e.g., 1st, 2nd, 3rd, etc.) for each of the eight options using a stacked bar graph. Or, you can calculate the average rank of each area and plot these on a lollipop graph as shown below. You would want to provide information about the "other" answers to accompany this graph.

Classroom management and classroom curriculum are the top two areas mentees need support according to mentor teachers.



Source: Believe and Prepare Mentor Teacher Survey. Author-created data.