

## Appendix A: Teacher Retention and Recruitment Survey Results

The Teacher Retention and Recruitment Survey results are one product of the Governor's Working Group on Teacher Retention and Recruitment (TRR). The purpose of the TRR Working Group, established in May 2020, was to review the root causes of Alaska's teacher retention and recruitment issues and to propose solutions to better attract and retain great teachers. Understanding that great teachers form the foundation of a great educational program, this working group was tasked with problem-solving this aspect of the system to ensure Alaska can provide an excellent education for every student every day. These survey results were used to develop a plan that proposes practical, professional, and policy recommendations for the Governor and Commissioner of the Department of Education & Early Development (DEED) through research-based methods involving represented stakeholder groups. The 30-member TRR Working Group encompassed the full spectrum of stakeholders representing Alaska regionally (many districts and schools in an array of rural and urban settings); professionally (teacher, administrator, student, school board members); by experience (early career to long-term experience); by grades within the system (Pre-K, K-12, higher education); and by various components of the system (current and retired educators, support organizations, and policy makers). Adams Analytic Solutions LLC (AAS) was contracted to act as lead investigator and group facilitator.

The TRR Working Group met monthly (with few exceptions) from May 2020 through March 2021. Meetings were held via Zoom and were used as discussion forums. Participants prepared for meetings by reading and note making on the resources AAS provided between meetings. These resources started with seminal research articles on teacher retention and recruitment in America and progressed to Alaska-specific research articles on these topics. The new research project emerged through these discussions on existing research from the perspective that while we Alaskans knew the challenges teachers faced, our goal was to better understand which of these important factors most immediately concerned stakeholders. The TRR Survey was the primary tool of this new research project. Additional data collection was conducted through (a) interviews with educators who have left the profession and/or state and (b) focus groups with current school district recruiters. This report specifically focuses on the TRR Survey.

There have been many research studies conducted over the last few decades that illuminate the issues facing the state in terms of teacher retention and recruitment. What had been lacking was an understanding of which issues are most important to educators *at this current time*. The Working Group's educator survey was designed by first identifying factors of most importance through a literature review of existing research on teacher retention, turnover, and recruitment especially within the state of Alaska. The results of that literature review formed the compilation of items used in the survey design.

## Design

Best-Worst Scaling<sup>i</sup> (BWS) was selected as the most useful survey technique to determine the relative value of previously-known important factors. The assumption was that although these factors were important, they might accrue more or less value at different times given the current conditions. The TRR survey design used two sections of Best-Worst Scaling with different prompts. These studies were conducted concurrently using Sawtooth Software<sup>ii</sup> in the same online survey; an additional 11 demographic questions were used for determining representativeness of the sample and conducting meaningful subgroup analyses.

Representativeness refers to how closely the sample reflects the actual population of interest. It is considered by comparing distributions of different variables between the sample gathered and the population that is known. Ensuring a representative sample reduces the bias that may occur otherwise.<sup>iii</sup>

Personal Importance was designed as a Sparse Best-Worst 40-item study with 15 sets of four items each, including six (6) prohibitions specifically around the topic of professional development. These questions formed Part 1 of the survey.

Solution Influence was designed as a Sparse Best-Worst 34-item study with 15 sets of four items each, including 16 prohibitions connected to two areas – incentives and retirement changes. These questions formed Part 2 of the survey.

Invitations were sent with a personal link to 15,678 people who held active Alaska-certificated teacher licenses, current as of October 2020, as referenced through the DEED database. The survey remained open for about three months from October 26, 2020 through January 31, 2021. If an educator had not received an invitation or it went to their spam/junk email, additional opportunities to receive an invitation were made possible through outreach, word of mouth, and via the DEED website. Superintendents received regular updates on response rates by district to encourage participation.

## Sample

Of those invited, 4420 participants took the survey and 3604 (81.5%) completed it fully. With these large numbers of participants, the survey design has high precision in general, meaning the estimates will have a low standard error of measurement.<sup>iv</sup> Further, specifically to BWS, this large sample size affords analysis using the Hierarchical Bayes (HB) estimation technique. HB estimation is the most desirable analysis for BWS since it produces individual values, called fit statistics, for each participant and allows for further analysis techniques that can provide valuable results and interpretations (see TURF Analysis as one example below).

Since the number of people invited to take the survey was more than twice the number currently working in public K-12 education system in the state, the distribution of participants across districts was an important measure of representativeness. Of those participants who identified themselves as currently working in one of Alaska's 54 districts, a respectable level of

40% response rate (3,098 out of 7741) was achieved. Further, 34 of the districts had a response rate of at least 40%, while the rate for another 13 districts ranged between 30% and 40%. This distribution of participants is essentially no different than the distribution of educators in the 54 districts ( $\chi^2(1, N=54) = 0.84 > 0.05$ , i.e., no statistically significant difference). The five urban school districts (Anchorage, Fairbanks North Star Borough, Juneau, Kenai Peninsula Borough, and Matanuska-Susitna Borough) had response rates ranging from 36% to 40%, thus urban teachers were not overrepresented.

Together with the other demographic distributions described below, this sample can be considered a representative sample of those holding current certificated teaching licenses in Alaska and still having a vested interest in Alaska's larger K-12 education system. The representativeness and raw number of the respondents were important when considering practical, professional, and policy recommendations. Together, they provided a medium-level of confidence that any recommendations may be well-received across the participating stakeholder groups.

To determine if the design was good, given the number of participants, the overall fit statistic was considered for each Part. With Personal Importance at 0.618 and Solution Influence at 0.603 using HB analysis with 30,000 iterations (converging after 5.9 and 8.7 seconds respectively), these show a good design for the sample size, both much higher than the chance value of 0.25 by about 2.5 times.<sup>v</sup>

## Cleaning of Sample

Of the 4420 participants, 3613 (82%) completed the survey – that includes 9 who stopped within the demographics section (2 at the end of solution importance, 1 at the start of demographics, 3 at the district question and 3 at the gender question). The analysis used 3604 complete records.

*Speeders:* Of the total number of participants, 4223 (96%) completed the Personal Importance section and 3753 (85%) completed the Solution Influence section. Of those, 78 participants had time completion stats of less than half of the expected time of 20 minutes, for a 2% rate of speeders.

*Random Responders:* An analysis to identify random participants was conducted by running a test of 100 random responses. Using the fit statistic results for Personal Importance and Solution Influence independently, a 95% consistency cut-off level was determined for each. This process produced an additional 19 participants with low fit statistics, at or below the 95% cut-off of 0.43551, for the Personal Influence section and another 16 participants with low fit statistics, at or below the 95% cut-off of 0.40689, for Solution Influence section.<sup>vi</sup>

*Straight Liners:* Another type of potential bad data come from respondents who just picked the first item as best for each question. Given the distribution of best and worst responses by position, it seems highly unlikely that any straight liners have influenced the results.

Table 1: Analysis used to identify straight liners - a form of bad data – for both best and worst selections.

Position	'Best' Responses by Position		'Worst' Responses by Position	
	Personal	Solution	Personal	Solution
<b>1 (best)</b>	26.50%	26.07%	25.10%	24.71%
<b>2</b>	24.26%	24.50%	24.28%	24.48%
<b>3</b>	24.49%	25.00%	24.38%	24.41%
<b>4 (worst)</b>	24.75%	24.43%	26.24%	26.40%

In total, of the 3613 completed surveys, only 112 participants provided potentially bad survey data, or 3% of the sample. Given that the amount of potential bad data was quite small, these respondents were not removed from the sample. This decision was made out of a conservative choice to ensure that good data weren't accidentally removed while recognizing that the small amount of bad data could not influence the results since they made up a practically insignificant number of respondents.

## Survey Approach

The Best-Worst Scaling<sup>vii</sup> survey results presented demonstrate ranking (order) of these important factors to the sample of participants in the survey. The results also articulate preference scores (weight) through the calculated ratio of items from within a large list. A preference score is also considered a proportional ranking. Best-Worst Scaling results allow for an understanding of both the ranking (order) and the preference scores (weight) simultaneously.

Several limitations accompany the Best-Worst Scaling survey approach. A small number of teachers in this study did object (via email comments) to the process of having to select an item as most or least important when they felt all items were equally important. Further, this approach does not provide insights into the reason behind participants' decisions around selecting an item as most or least important. Items may be lower on the list because they are already being addressed or because they simply were not motivating participants' decision to continue teaching in Alaska. It is even possible that items might be ranked lower and weighted lower on the preference scores due to a lack of understanding of the items themselves. This may have been the case for Solution Influence results.

When sharing and interpreting the results the following essential perspectives are used.

- All items have been demonstrated to be valuable and lower rankings here do not invalidate those previous research results.
- Implying intentionality of participants would be disrespectful and inappropriate.
- Results describe a general collective view and not necessarily those of an individual educator.

## Analysis Techniques

The Hierarchical Bayes (HB) estimation was implemented for each section of the Best-Worst Scaling survey. Part 1 included 15 questions containing a random order of the 40 Personal Importance items, while Part 2 focused on the Solution Influence, and was comprised of 15 questions containing a random order of those 34 items. Each section used a specific prompt, shown in Table 2, when asking participants to consider selecting most and least from four items. Utility numbers are calculated relative values for which a higher utility translates to more liking than a lower utility.<sup>viii</sup> Utilities for each participant are calculated given all of their responses to the questions and then averaged to find their total utility number. The resulting value can then be used to determine ranking and preference score.

Table 2: Specific prompts used for each section of the survey based on the topic.

Section	Topic	Prompt
<b>Part 1</b>	Personal Importance	Considering only these factors, which is the <b>most important</b> and which is the <b>least important</b> of these factors in motivating you to continue teaching in Alaska at this time (even if they are not part of your current situation)?
<b>Part 2</b>	Solution Influence	Please consider how influential you believe these different solutions may be in improving teacher retention and recruitment in Alaska. Considering only these ideas, which do you believe may be the <b>most influential</b> and which may be the <b>least influential</b> ?

Further, the final section of the survey asked participants to self-identify on 11 demographic variables. Table 3, below, shows the list of 11 demographic variables, response options, the type of questions, and whether it was a generic question or created specifically for this survey. In the case of Current Status, the variable was recoded into a collapsed variable called Role and the recoding is shared here as well.

Table 3: List of demographic variables with response options, those marked with \* are used to conduct subgroup analyses.

Variable	Responses	Response Type	Type
<b>Gender*</b>	Female Male Other Prefer not to answer	Select an option	generic
<b>Hispanic Simple</b>	Yes No Prefer not to answer	Select an option	generic

Variable	Responses	Response Type	Type
<b>Race Simple</b>	White Black or African American American Indian or Alaska Native Asian Native Hawaiian or Other Pacific Islander Prefer not to answer	Mark all that apply	generic
<b>Retirement Tier*</b>	Tier I <sup>1</sup> Tier II Tier III Unsure Prefer not to answer	Select an option	created
<b>Experience (in education)</b>	Open – total years	Enter a whole number	created
<b>Experience in Alaska</b>	Open – total years	Enter a whole number	created
<b>District</b>	54 districts named (includes Mount Edgecumbe) Prefer not to answer None Other	Select an option	created
<b>Location* (school)</b>	Rural Rural, hub Rural, road system Urban	Select an option	created

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<sup>1</sup> Tier I was the teachers' retirement system offered 7/1/1955 - 6/30/1990. It was replaced by Tier II after 6/30/1990 until 6/30/2006, and then Tier III after 6/30/2006 until present.

Variable	Responses	Response Type	Type
<b>Current Status</b>	<ol style="list-style-type: none"> <li>1. Classroom teacher (recoded -&gt; 1)</li> <li>2. Special education teacher (-&gt; 1)</li> <li>3. Specialist (music, art, speech, physical education, etc.) (-&gt; 1)</li> <li>4. Distance-delivery teacher (established correspondence programs) (-&gt; 1)</li> <li>5. Counselor (-&gt; 1)</li> <li>6. Librarian (-&gt; 1)</li> <li>7. Director or coordinator (-&gt; 2)</li> <li>8. Administrator (-&gt; 2)</li> <li>9. Substituting or other part-time work (-&gt; 1)</li> <li>10. Homeschooling parent (-&gt; 3)</li> <li>11. Not working (no contract) (-&gt; 3)</li> <li>12. Retired educator (-&gt; 4)</li> <li>13. Other (-&gt; 3)</li> </ol>	<p>Select an option</p> <p>Recoded into Role*</p> <ol style="list-style-type: none"> <li>1. Current Educator</li> <li>2. Current Administrator</li> <li>3. Other</li> <li>4. Retired</li> </ol>	Created
<b>AK Status</b>	<ol style="list-style-type: none"> <li>1. I was born and raised in Alaska.</li> <li>2. I graduated from a high school in Alaska.</li> <li>3. I graduated from an Alaska post-secondary institution.</li> <li>4. I moved to Alaska for adventure.</li> <li>5. I moved to Alaska because I love the outdoors.</li> <li>6. I moved to Alaska with the military.</li> <li>7. I moved to Alaska based on a family member's circumstance.</li> <li>8. This was the best job opportunity offered to me.</li> <li>9. I wanted to work in a remote area.</li> <li>10. I prefer living and working in rural areas.</li> <li>11. I wanted the experience of working with other cultures.</li> <li>12. I wanted to work with Indigenous people.</li> <li>13. I wanted to experience some place different than where I'm from.</li> <li>14. I prefer living where it's cold.</li> <li>15. I was attracted here for other reasons.</li> </ol>	Mark all that apply	created

Variable	Responses	Response Type	Type
<b>Retention Status</b>	1. Stay at my same school 2. Keep the same teaching assignment 3. Change teaching assignments 4. Move to a different school in the same district 5. Move to another district 6. Take on administrative and/or leadership role 7. Continue as a homeschooling parent 8. Move to another state to teach 9. Move to another state and work outside of education 10. Take a break for professional purposes 11. Take a break for personal purposes 12. Retire 13. Leave the teaching profession and stay in Alaska 14. Other 15. Unsure 16. Prefer not to answer	Mark all that apply	created

\*Variable used to conduct subgroup analyses

## Subgroup Analysis

Subgroups are determined using the demographic variables gathered. Since the HB estimation creates individual utility numbers for each participant, the subgroup reorganizes those by averaging utility numbers across the participants in that category of the variable. The same type of outputs can be considered across subgroups as the full analysis – rankings and preference scores. Note that not all demographic variables are used for subgroup analysis. First, the variable District was captured to ensure the sample was representative. Second, continuous variables of Experience and Experience in AK were found to be highly correlated with Retirement Tier, a categorical variable, and so were not used for subgroups while still providing information on representativeness. (Experience is correlated with Experience in AK:  $n=3601$ ,  $p=0.01$  level,  $r = 0.742$ ; Retirement Tier is correlated with Experience:  $n=3601$ ,  $p = 0.01$ ,  $\rho = -0.551$ ; and Retirement Tier is correlated with Experience in AK:  $n=3608$ ,  $p = 0.01$ ,  $\rho = -0.719$ .)

Ethnicity variables (Hispanic Simple and Race Simple paired) were gathered as another important aspect to ensure the sample was representative. Given those results, as expected, these variables were too lopsided (predominantly non-Hispanic White) to use for a subgroup analysis. While the variables of AK Status and Retention Status help to situate and understand the data, providing additional insights, these are also not used for any subgroup analysis.



## Results

### Full Sample

Preference scores were calculated for Personal Importance items using HB analysis with 4223 respondents and 30,000 iterations. To find preference scores, the utility scores were first averaged across respondents for each item. Then the average utility scores were sorted to determine the lowest value. The lowest value was then used to standardize scores (all utility scores divided by that same lowest value). The results were preference scores for each Personal Importance item as shown in order in Figure 1. Fit statistics ranged from 0.37 to 0.82 across the individual respondents, higher than the cut-off of 0.25, suggesting that participants were generally consistent with their choice making. The HB results show the rankings (order of items on vertical line) using preference scores (weight on horizontal line) for the 40 Personal Importance items.

**Personal Importance:** Results can be interpreted first in terms of ranking (order) and second in terms of preference scores (weight). For example, Figure 1 shows *positive workplace conditions* ranking 2<sup>nd</sup> with a 17.1 weight compared to *access to professional development by other teachers* ranking 40<sup>th</sup> with a forced weight of 1.0. This means that participants are 17.1 times more likely to feel *positive workplace conditions* are personally important right now than to feel *access to professional development by other teachers* is.

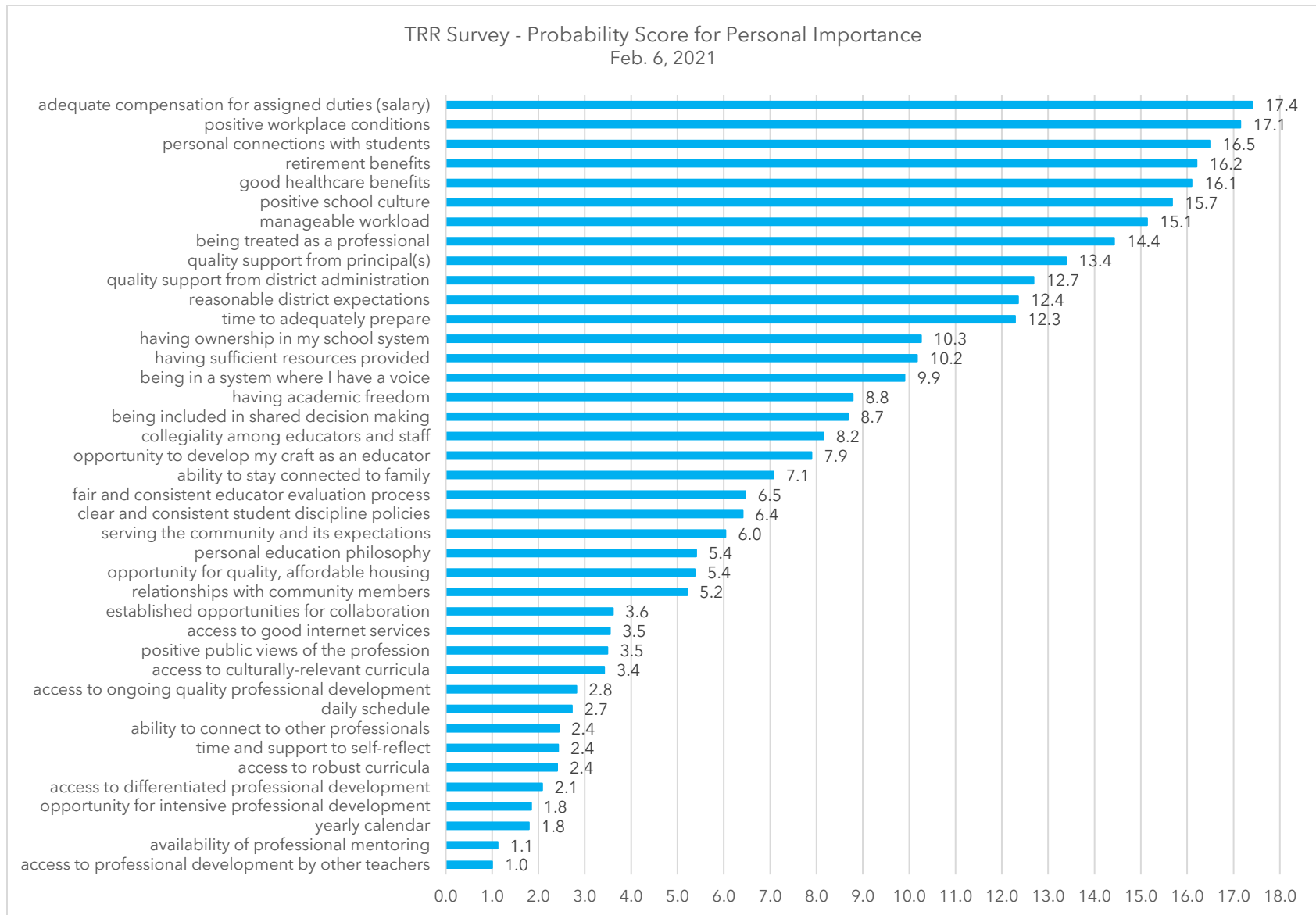


Figure 1: Distribution of the 40 Personal Importance items used in Part 1 of the Best-Worst Scaling survey, n=4223.

**Solution Influence:** Preference scores were calculated similarly for Solution Influence items using HB analysis with 3753 respondents and 30,000 iterations. Fit statistics here ranged from 0.37 to 0.83 across the individuals. Figure 2 shows the preference scores in order for the 34 Solution Influence items

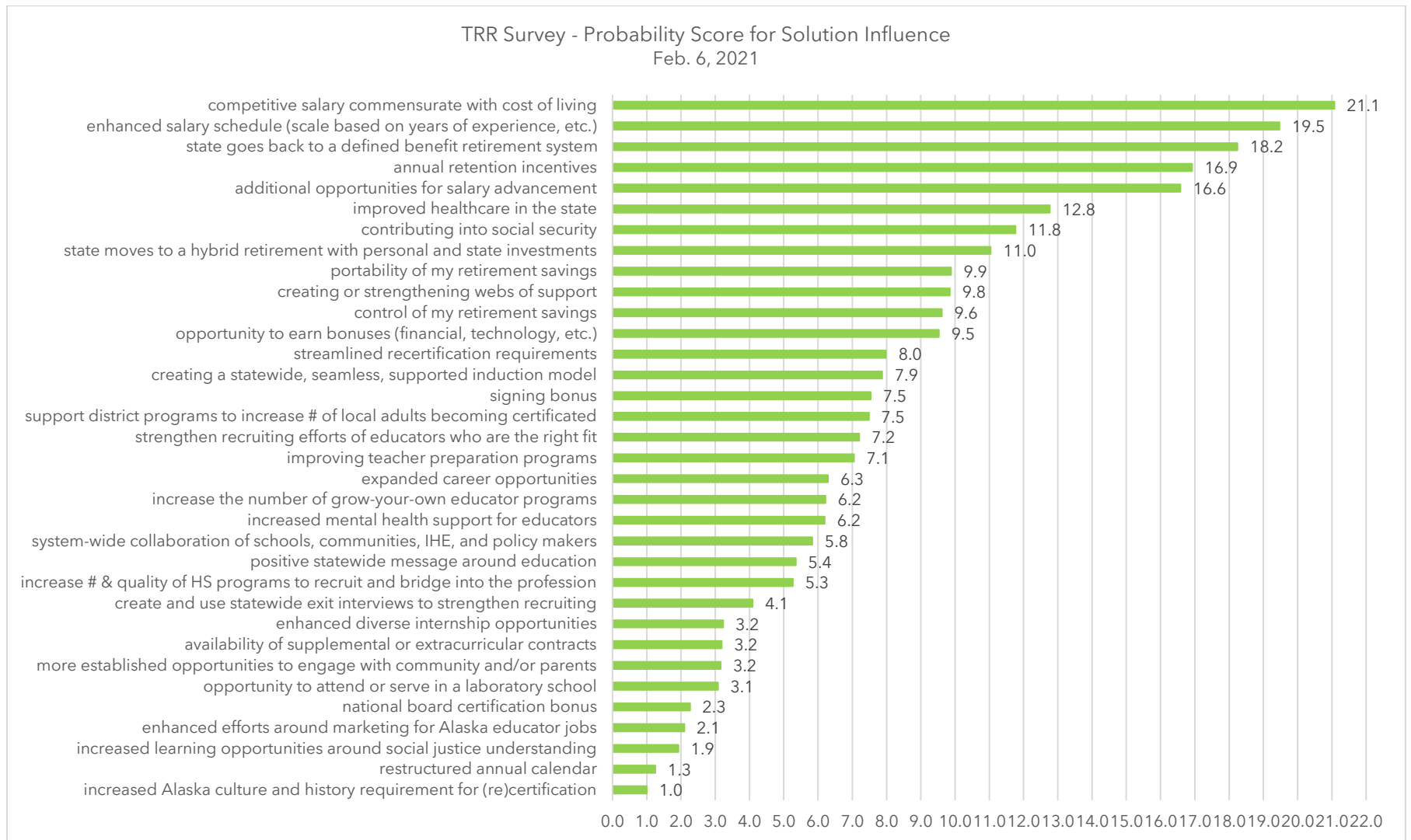


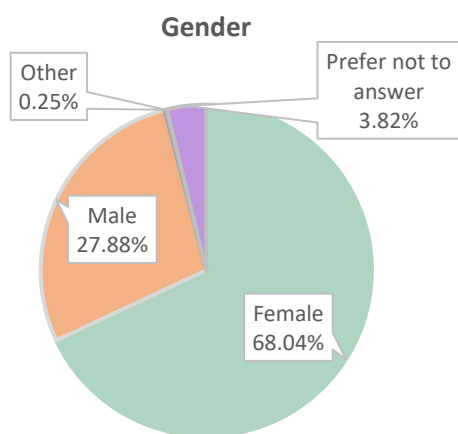
Figure 2: Distribution of the 34 Solution Influence items used in Part 2 of the Best-Worst Scaling survey, n=3753.

**Demographics:** Demographic results are shared in appropriate charts and graphs below to illustrate the distribution of each from within the sample and as a measure of representativeness of the population of people who held active Alaska-certificated teacher licenses. Further, several of the demographic variables (Role, Retirement Tier, Gender, and Location) are used to create subgroup analyses to further understand results.

Subgroup results are shared for Role, Retirement Tier, Gender (figure 3), and Location (school). In all cases, the items are listed in rank order from the full results and then rankings and/or preference scores are shared for each subgroup to compare across that variable.

Demographics were collected to allow for subgroup analyses and to understand the distributions of participants. The following charts provide demographic results, demonstrating the distribution of participants for each variable. Remember, most variables had a prefer-not-to-answer option, which is different than missing data (identified by the n reported).

The distribution of participants based on gender, shown in Figure 3, is comparable to that of the education workforce in the state, which tends to be about 70% female, 30% male using only two categories<sup>2</sup>.



*Figure 3: Distribution of participants' self-identified gender, n=3608.*

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<sup>2</sup> Calculated values obtained from Department of Education & Early Development, April 1, 2021. Note that distributions for Current Administrators varies from Current Educators with 49% vs. 72% females respectively.

The distribution of participants based on Ethnicity, Figure 4, is also comparable to that of the education workforce in the state<sup>3</sup> with about 86% identifying as White, 1% Black, 5% American Indian/Alaska Native, 2% Asian, less than 1% Native Hawaiian or Other Pacific Islander, 3% Hispanic.

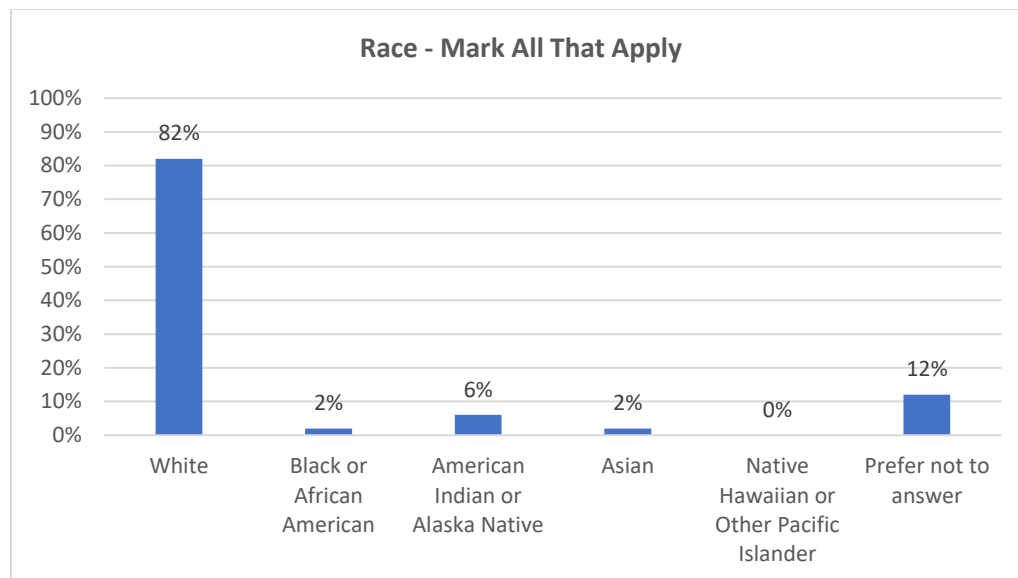


Figure 4: Distribution of participants' self-identified ethnicity/race with mark-all-that-apply option, n=3608. Further, results show 3% specifying Hispanic, Latinx, or Spanish origin, 88% not, and 8% prefer not to answer.

Retirement Tier in Alaska (see Figure 5) shows that the most predominant group of participants fall into Tier III (38%) or the most recent hires (since 2006), with Tier II or mid-career (36%) closely behind and a smaller percent of Tier I (8%) who may be retired or close to retirement.

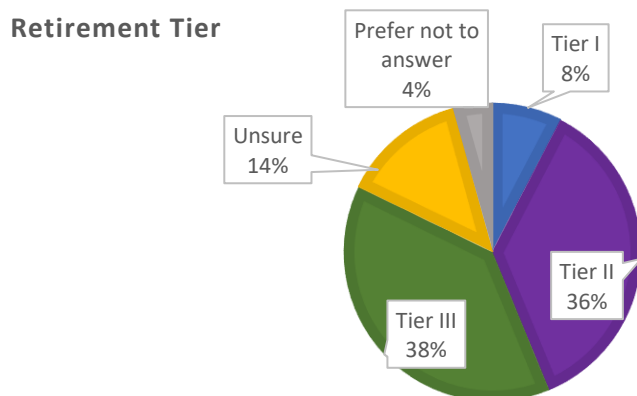


Figure 5: Distribution of participants based on self-identified retirement tier in the Alaska's Teacher Retirement System (TRS), n=3608.

<sup>3</sup> Calculated values obtained from Department of Education & Early Development, April 1, 2021.

The distributions of participants based on their total years of experience in education (Figure 6), and specifically education experience in Alaska (Figure 7), are shared in the following histograms. Each bar represents a 2-year period with the height identifying the frequency or count of survey participants falling into that 2-year span. These histograms demonstrate that the survey captured a wide variety of educators based on years of experience.

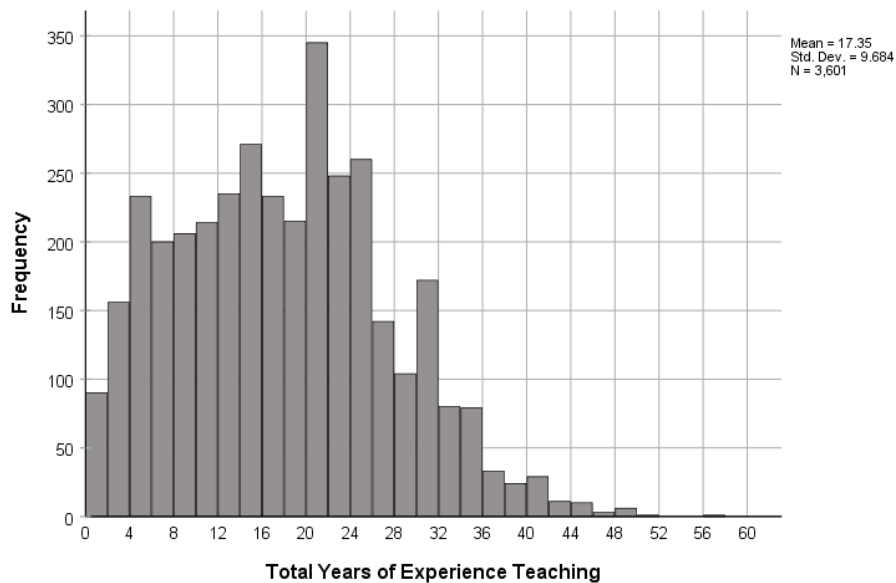


Figure 6: Distribution of participants based on self-identified years of experience teaching in whole years,  $n=3601$ . Each bar represents a 2-year timespan as indicated on the x-axis, counts are shown on the y-axis.

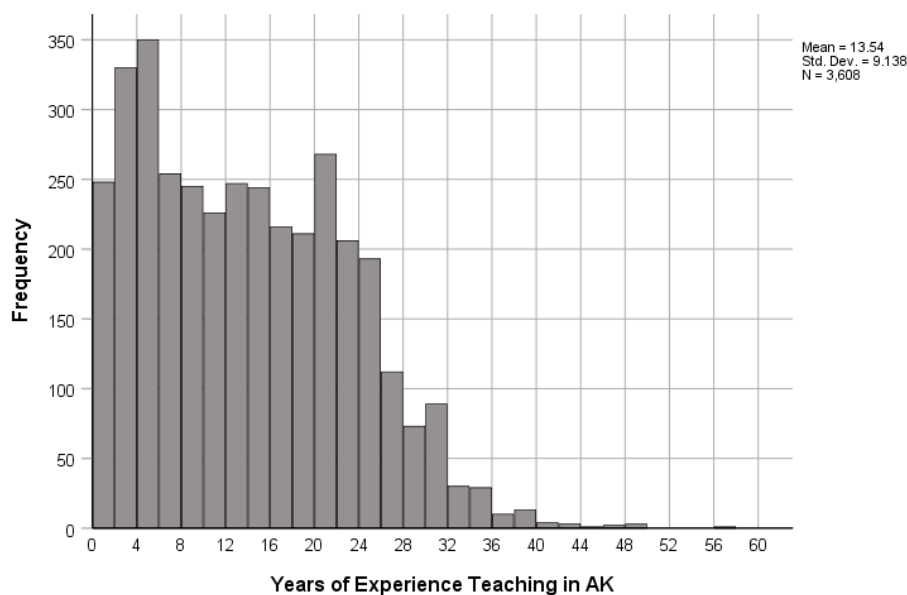


Figure 7: Distribution of participants based on self-identified years of experience teaching in Alaska in whole years,  $n=3608$ . Each bar represents a 2-year timespan as indicated on the x-axis, counts are shown on the y-axis.

The distribution of participants based on their Current Status, recoded into Role, is shown in Table 4. Although there is no way of knowing the precise distribution within the state, this cross-section appears reasonable and representative, given there about 500 schools, 54 districts, and nearly 7750 certificated educators in the state<sup>4</sup>.

*Table 4: Distribution of participants based on recoded educator status (Role) during the 2020-2021 school year, n=3604 from the Current Status variable.*

Role	Count	Percent
Current Educators	2704	75.0%
Current Administrators	351	9.7%
Retired Educators	266	7.4%
Not in Current K-12 System Homeschooling Parent Not working (no contract) Other	284	7.9%

Further, the distribution of participants based on their Current Status, who fall under Current Educators, is shown in Table 5 and demonstrates the cross-section of educators who participated.

*Table 5: Distribution of participants based on self-identified teaching status during the 2020-2021 school year, n=2704, expanded from the Current Educator role in Table 3.*

Role (Educator-Specific)	Count	Percent
Classroom teacher	1712	47.5%
Special education teacher	413	11.5%
Specialist (music, art, speech, physical education, etc.)	293	8.1%
Distance-delivery teacher (established correspondence programs)	78	2.2%
Counselor	117	3.2%
Librarian	42	1.2%
Substituting or other part-time work	48	1.3%

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<sup>4</sup> Calculated values obtained from Department of Education & Early Development, April 1, 2021 demonstrate 8% administrators and 92% teachers when only considering those two categories. Counts for those who are retired and not working were not accessible.



As teacher recruitment and retention is often tied to the educator's connection to the state, their Alaska status was collected. Participants can select all options that apply. Thus, the total exceeds 100% in the funnel graph in Figure 8. The distribution demonstrates quite a variety of participants' connections to Alaska.

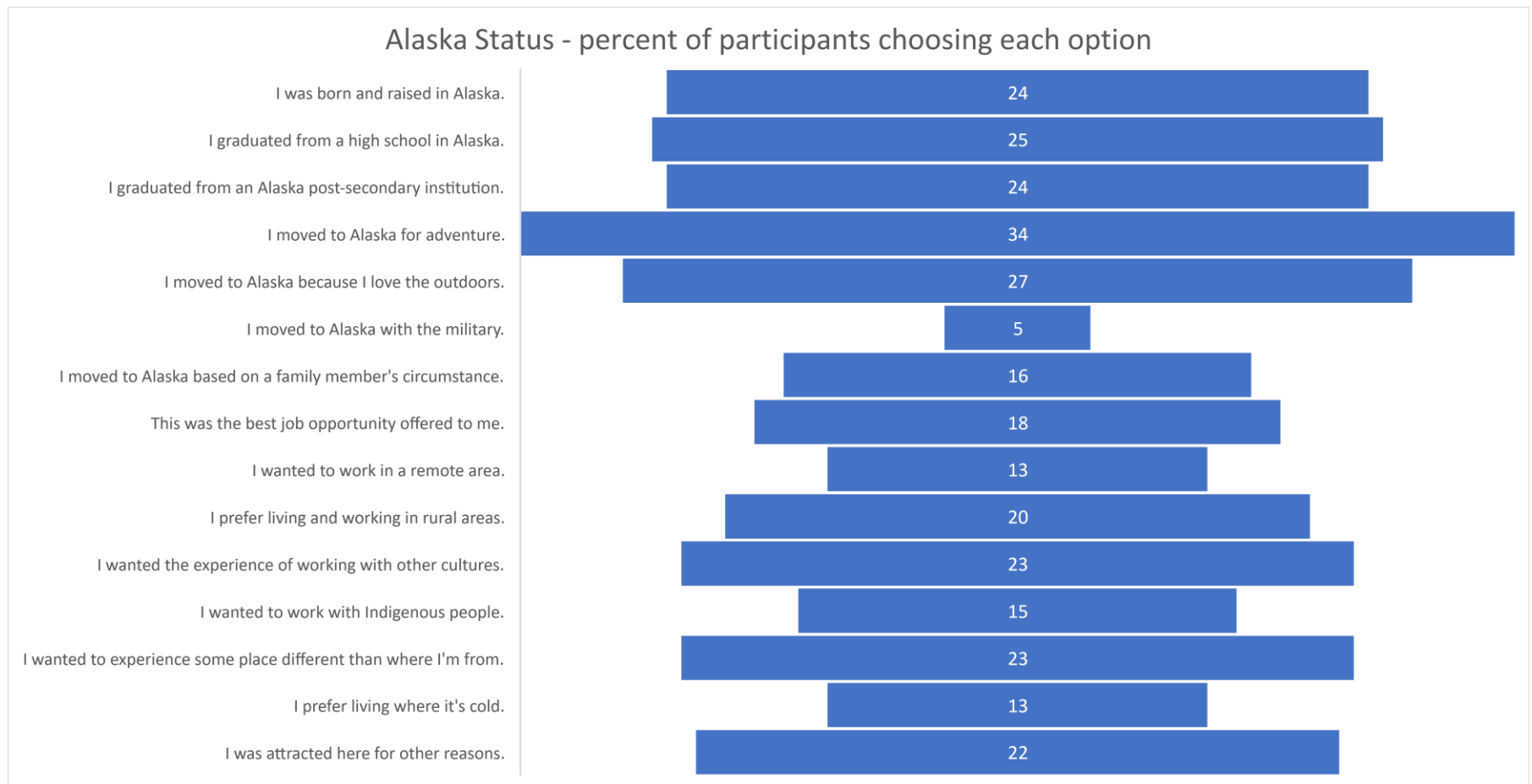


Figure 8: Distribution of participants' self-identified connection to or desire for Alaska, n=3604.

The survey also asked participants about their plans for the following school year. Results are shown in this funnel graph in Figure 9. Since participants could select multiple options, the total exceeds 100%. This information provides insightful data to understand the context of participants and situate the results.

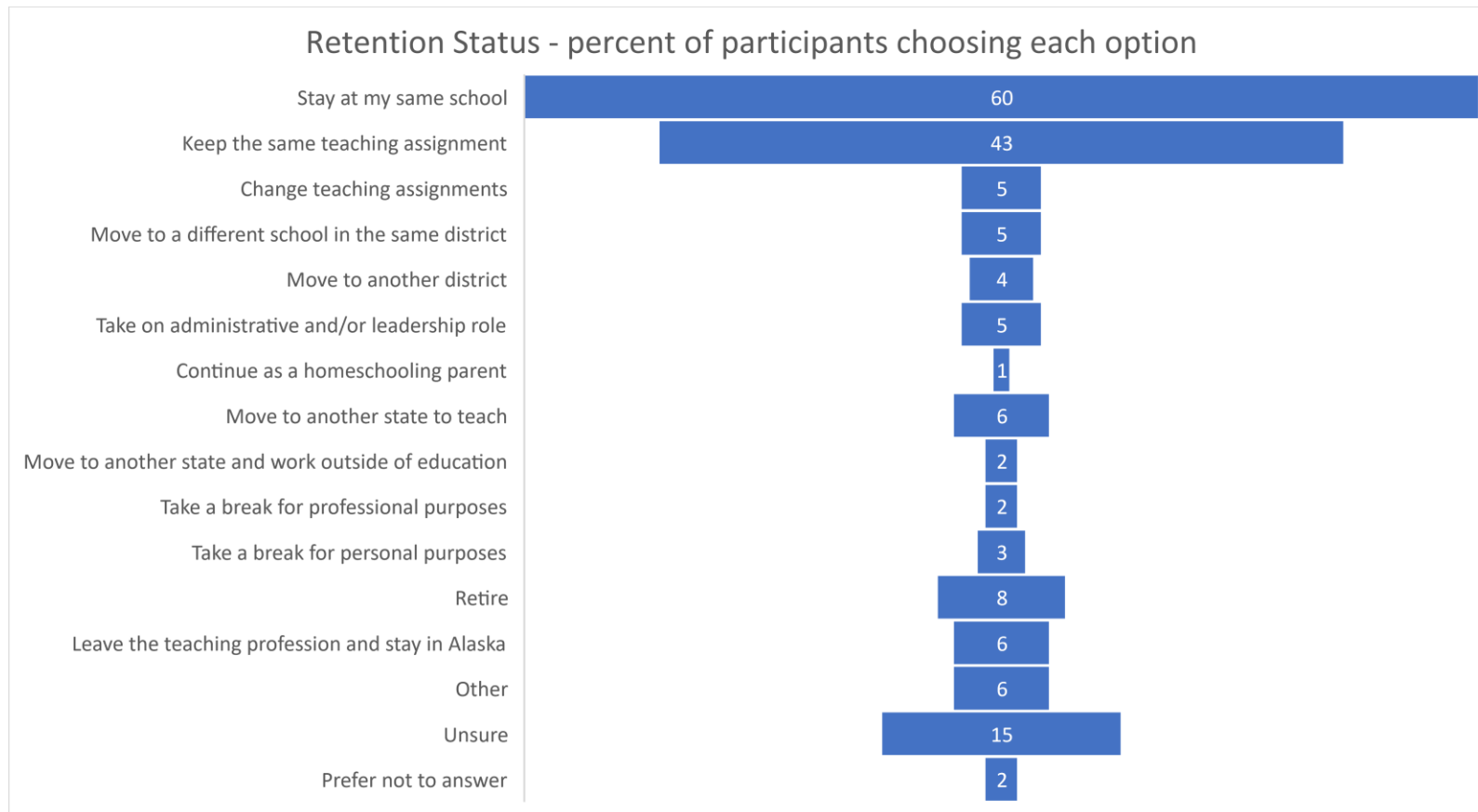


Figure 9: Distribution of participants' self-identified plans for the following school year, called Retention Status, n=3604.

## Summary of Full Results

Considering all participants together provides the full results from the sample. Figures 1 and 2 provide the most comprehensive view of the full results. Every item in each figure has a ranking (order) and a preference score (weight) for all of the 40 Personal Importance and all of the 34 Solution Influence items. The rankings are shown from top to bottom in order and the preference scores are shown in the bars, with the number marked at the end of the bar.

While interpreting these results is a complex and lengthy process, highlights of some of the most interesting outcomes from the Personal Importance results (Figure 1) are outlined here.

Financial Items rank high in the Personal Importance results:

- *Adequate compensation for assigned duties (salary)* ranks 1<sup>st</sup> and is preferred 17.4 times more than *access to professional development by other teachers*, ranked 40<sup>th</sup>, when participants were asked about most and least important items.
- *Retirement benefits* ranks 4<sup>th</sup> and is preferred 16.2 times more than *access to professional development by other teachers*.
- *Good healthcare benefits* ranks 5<sup>th</sup> and is preferred 16.1 times more than *access to professional development by other teachers*.

Working Conditions also rank high in the Personal Importance results:

- *Positive workplace conditions* ranks 2<sup>nd</sup> and is preferred 17.1 times more than *access to professional development by other teachers*.
- *Personal connections with students* ranks 3<sup>rd</sup> and is preferred 16.5 times more than *access to professional development by other teachers*.
- *Positive school culture* ranks 6<sup>th</sup> and is preferred 15.7 times more than *access to professional development by other teachers*.

Support and Professionalism complete the top 10 list in the Personal Importance results:

- *Manageable workload* ranks 7<sup>th</sup> and is preferred 15.1 times more than *access to professional development by other teachers*.
- *Being treated as a professional* ranks 8<sup>th</sup> and is preferred 14.4 times more than the 40<sup>th</sup> ranked item.
- *Quality support from principal(s)* ranks 9<sup>th</sup> and is preferred 13.4 times more than the 40<sup>th</sup> ranked item.
- *Quality support from district administration* ranks 10<sup>th</sup> and is preferred 12.7 times more than the 40<sup>th</sup> ranked item.

Notice that Leadership is connected to both the Working Conditions and Support and Professionalism outcomes. A more detailed and comprehensive analysis of these full results is shared in the Analysis section, including thoughts around the Solution Influence results which are much less robust than the Personal Importance results.

## Subgroup Results

Subgroup results parse out the full results to demonstrate how the participants falling into various categories relate to each other on the same Personal Importance and Solution Influence items. Understanding subgroup results helps to determine the amount of alignment in thinking across the categories in terms of both rankings and preference scores. The following set of graphs (Figures 10 – 25) demonstrate subgroup results for four of the demographic variables as identified in Table 3. Personal Importance graphs are shown first with Solution Influence graphs following for each subgroup analysis.

For each subgroup analysis, graphs use the preference scores for each item averaged for the subgroup, while listing the items in ranking order from the full results. The preference scores were normalized using the minimum score for all subgroups. Each subgroup analysis uses a different minimum score and thus comparisons by preference score between subgroup analyses are inappropriate. In other words, Figures 10 and 11 are on a different scale than Figures 14 and 15 since they are analyzing different subgroups, even though both pairs show the top 15 Personal Importance items.

As with interpreting the full results, interpretation of subgroup results generally considers the ranking and the weight in comparison to each item across categories. Higher average preference scores indicate stronger preferences, or at least stronger differentiation between items for that category and across categories. In other words, some subgroup categories demonstrate greater extremes in the items valued at this time than the other items, whereas other subgroup categories may have more consistent preferences throughout the list of items.

**Role:** Personal Importance and Solution Influence results are segmented using four categories of the Role (recoded from Current Status) variable highlighting differences across this subgroup in Figures 10-13. Recall that the group current educators includes classroom teachers; special education teachers; specialists (music, art, speech, physical education, etc.); distance-delivery teachers in established correspondence programs; counselors; librarians; and any who are substituting or working part-time. Current administrators include administrators and directors or coordinators. Other includes those outside the public K-12 education system, like homeschooling parents; those currently not working or who have no contract, and those who marked other. Lastly, retired includes those who identified as retired for Current Status.

Note: For this subgroup analysis the unclassified participants are not shown. Unclassified participants are those with no demographic information pertaining to Role: N=618 for Personal Importance (out of N= 4223 total) and N=148 for Solution Influence (out of N=3753 total).

Here are highlights of how some of the top results differ or align across Role subgroups.

- Ranking by Role basically lists the same top 6 Personal Importance items, but both the weight and order differ between subgroups (Figure 10).
  - Current educators rank *salary* 1<sup>st</sup> (weight 22.7), while current administrators rank it 2<sup>nd</sup> (weight 22.5), retired 3<sup>rd</sup> (weight 20.6), and other 2<sup>nd</sup> (weight 21.3).

- Current administrators rank *retirement benefits* 1<sup>st</sup> (weight 22.8), while current educators rank it 4<sup>th</sup> (weight 20.9), retired 5<sup>th</sup> (weight 20.0), and other 6<sup>th</sup> (weight 19.5).
- The item *positive workplace conditions* has very close preference scores for all Role subgroup categories, while rankings vary within the top three for all: current educators rank it 2<sup>nd</sup> (weight 22.1), current administrators rank it 3<sup>rd</sup> (weight 22.2), retired 1<sup>st</sup> (weight 22.2), and other 1<sup>st</sup> (weight 21.8).
- Preference scores for Personal Importance start to differ across Role subgroups after the top 6 items, although almost all top 15 are consistent (Figures 10 and 11). Current administrators are the exception for top 6 and top 15 ranking *manageable workload* and *time to adequately prepare* much lower than the other subgroups rank them.
- Solution Influence has much less consistency in results across subgroup categories of Role than Personal Importance. Thus 20 items are shared in Figures 12 and 13 demonstrating widely varying ranking order across Role.
  - In Figure 12 only the top 5 items are consistent across current educators, current administrators, retired, and other.
  - The top 9 Solution Influence items connect to *salary*, *retirement benefits*, and *good healthcare benefits* from the Personal Importance items.
  - Current administrators, retired, and other place a higher preference on systems-level items such as *creating or strengthening webs of support* or *creating a statewide, seamless induction model*.

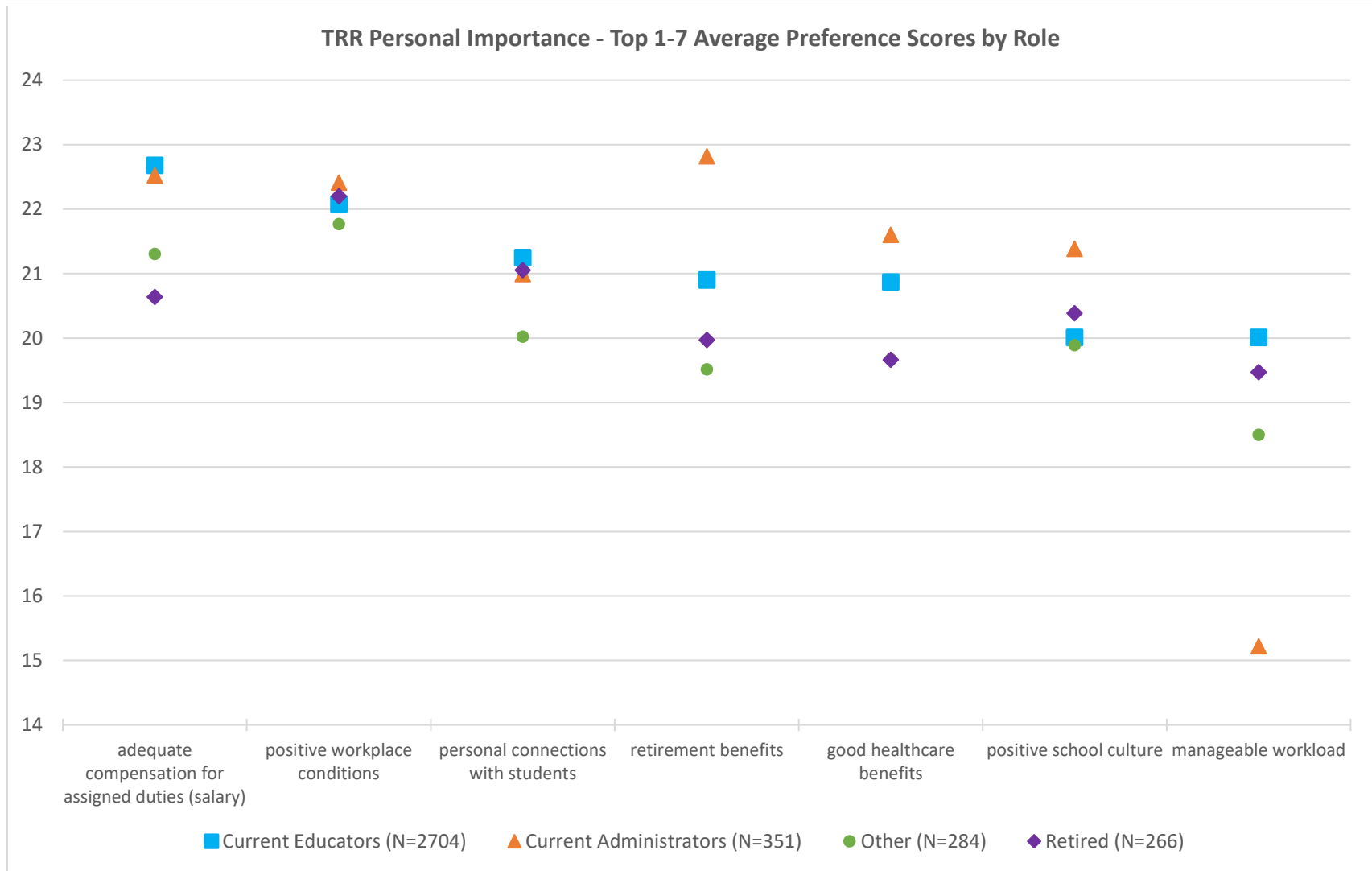


Figure 10: Preference scores for top 15 Personal Importance items segmented by Role (first 7 shown here, next 8 shown on following graph). Notice the overlap in scales for the weights between top 1-7 and top 8-15 items.

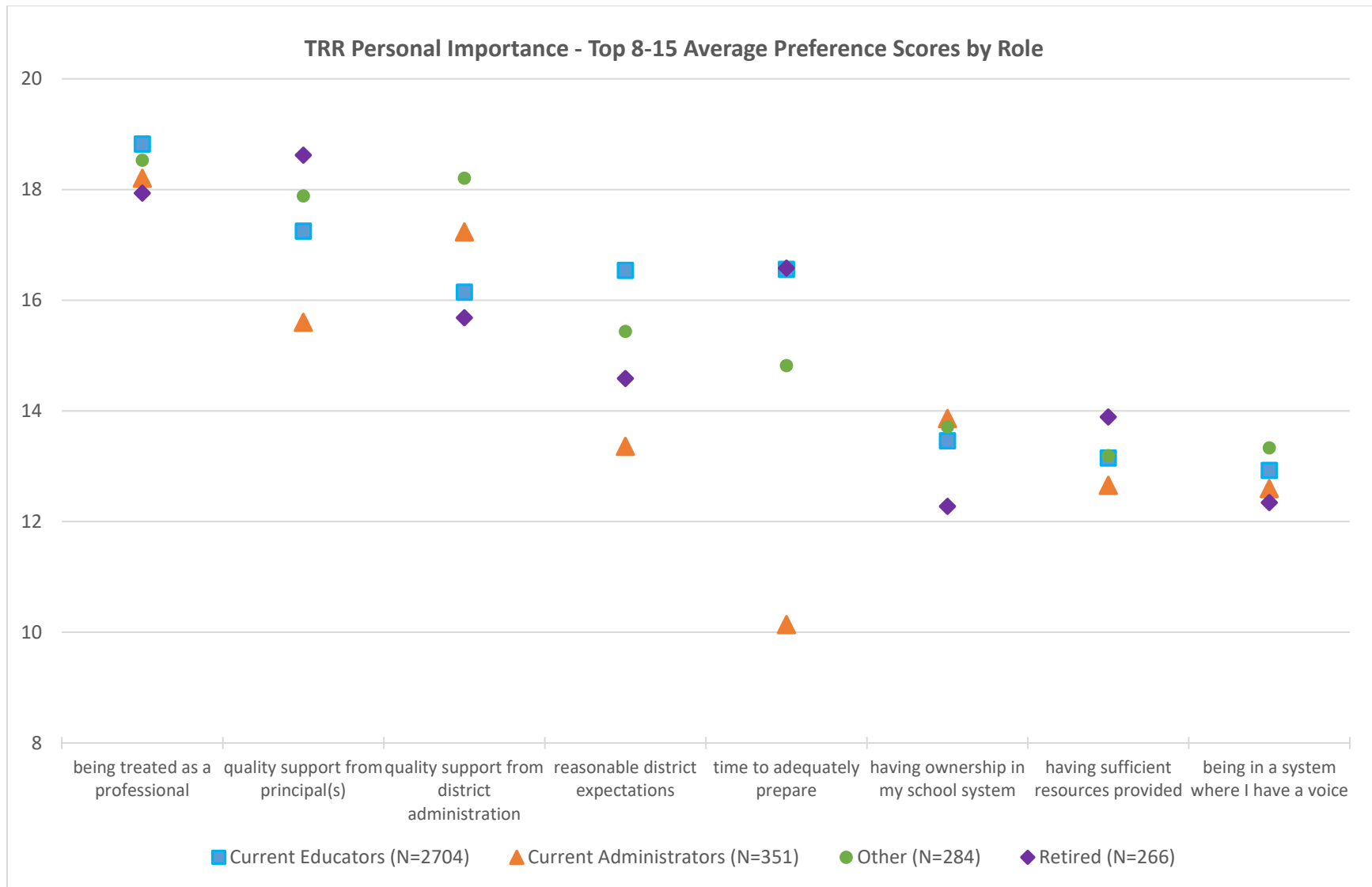


Figure 11: Preference scores for top 15 Personal Importance items segmented by Role (first 7 shown on previous graph, next 8 shown here). Notice the overlap in scales for the weights between top 1-7 and top 8-15 items.

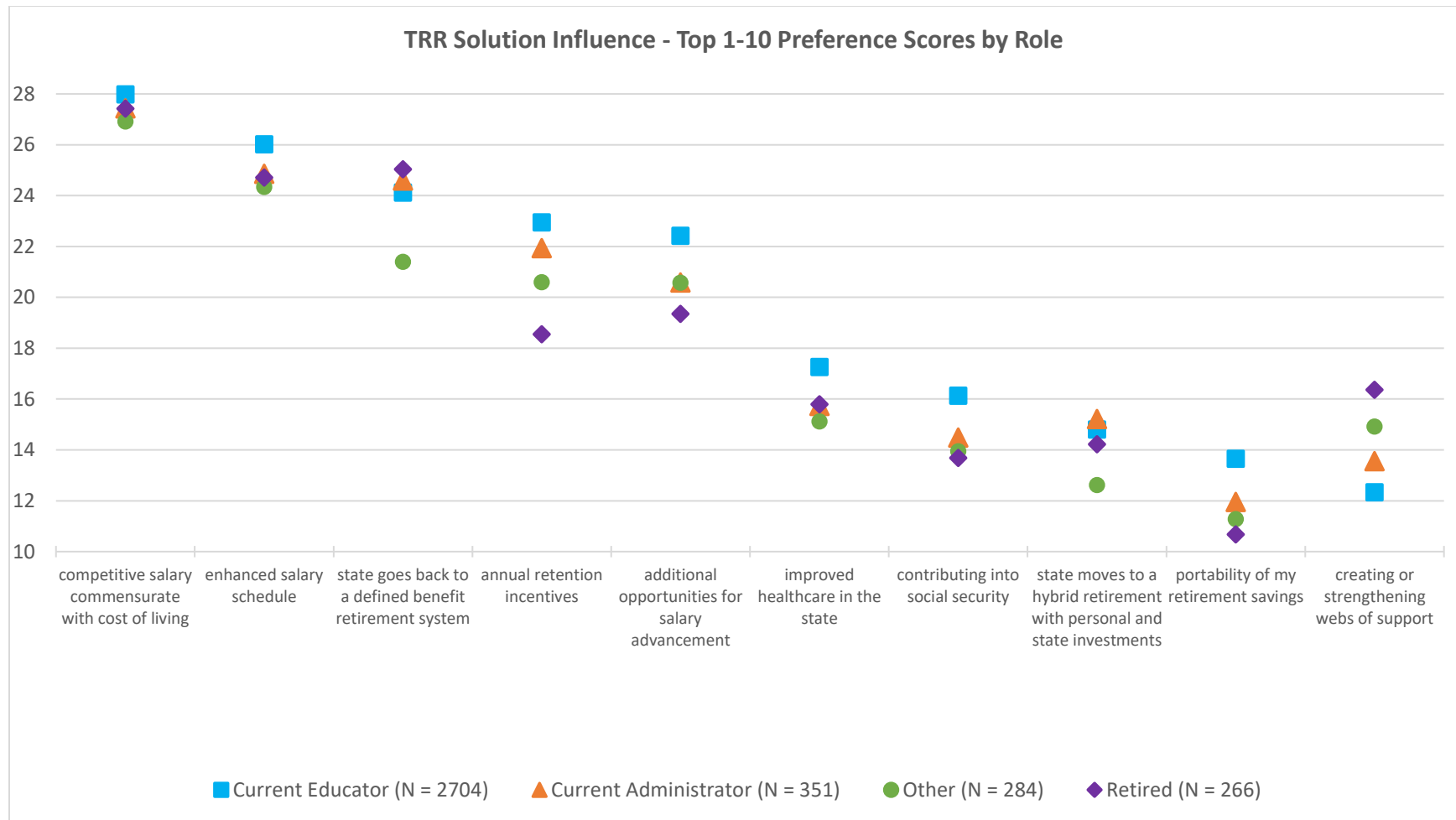


Figure 12: Preference scores for top 20 Solution Influence items segmented by Role (first 10 shown here, next 10 shown on following graph). Notice the overlap in scales for the weights between top 1-10 and top 11-20 items.



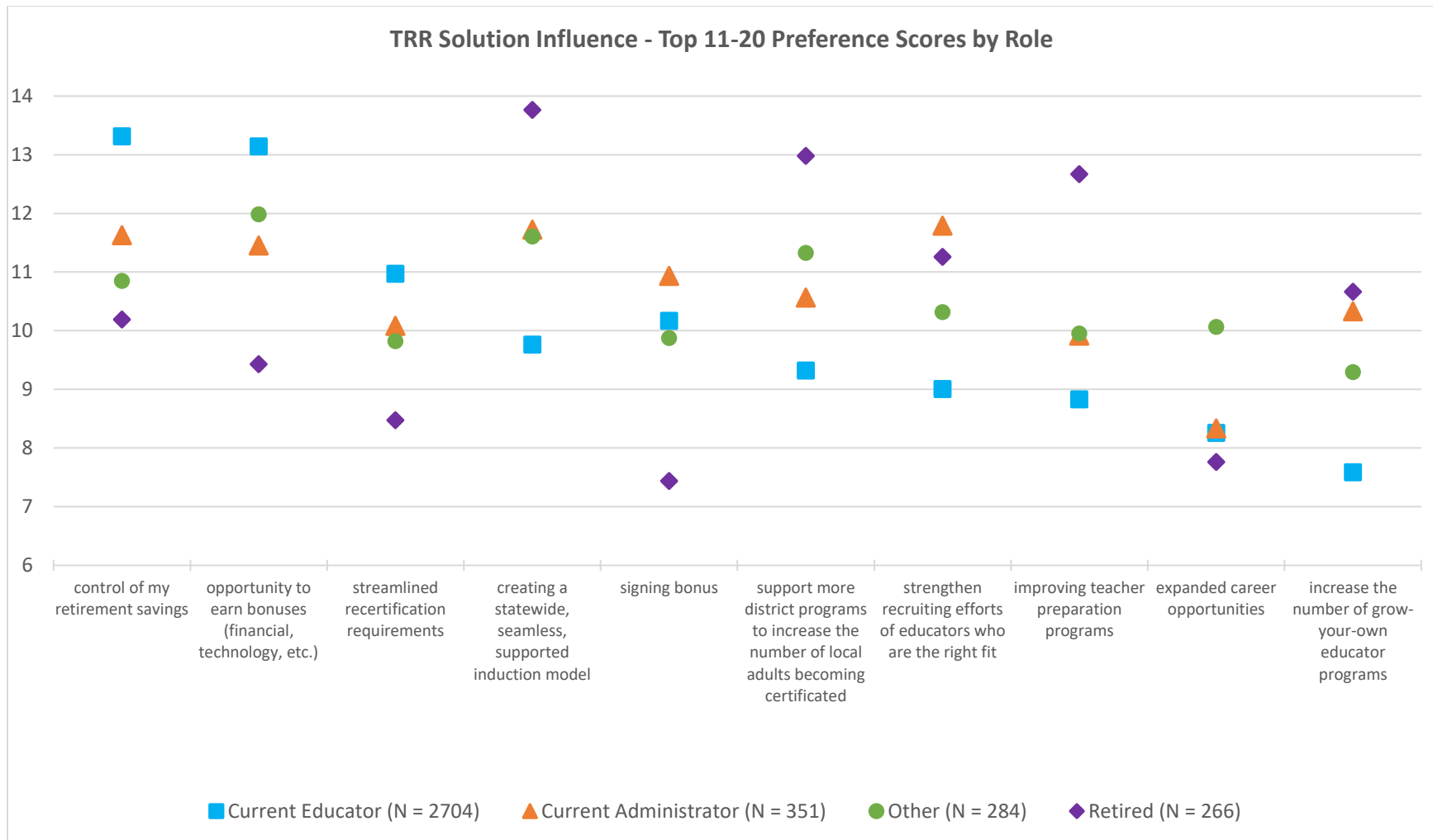


Figure 13: Preference scores for top 20 Solution Influence items segmented by Role (first 10 shown on previous graph, next 10 shown here). Notice the overlap in scales for the weights between top 1-10 and top 11-20 items.

**Location:** The same Personal Importance and Solution Influence results are next divided using the Location (school) variable in the following graphs highlighting differences across another subgroup. In Alaska, currently about 63% of the students and 69% of the teaching staff are in urban school districts<sup>5</sup>. Even in the five urban districts, some schools are in areas that may be considered rural or rural, road system. Thus, school location helps to untangle results connected to remoteness.

Note: For this subgroup analysis the unclassified participants are not shown. Unclassified participants are those with no demographic information pertaining to Role: N=618 for Personal Importance (out of N= 4223 total) and N=148 for Solution Influence (out of N=3753 total).

- Ranking subgroups fall into a couple different patterns for Personal Importance.
  - Ranking by rural and rural, hub subgroups follow roughly the same pattern for the first six items and most of the top 16 items (blue and green squares in Figures 14, 15). The items of *positive workplace conditions* and *personal connections with students* take the top two spots above financial items such as *salary* (coming in 4<sup>th</sup> and 3<sup>rd</sup> respectively), *good healthcare benefits* (coming in 5<sup>th</sup> for both) and *retirement benefits* (coming in 6<sup>th</sup>). Additionally, *positive school culture* ranks 3<sup>rd</sup> and 4<sup>th</sup> respectively aligning with the concept of workplace issues primarily being more important although ranking closely to the financial ones.
  - Rankings by rural, road system and urban are closer in their patterns than the other locations with several exceptions scattered throughout. For example, *salary* ranks 1<sup>st</sup> with both groups while *retirement benefits* rank 2<sup>nd</sup> with urban and 5<sup>th</sup> with rural, road system. In fact, the rural, road system subgroup follow almost the same order of rankings as the full group, for most of the top 15 items.
- Interestingly, the same pairs of subgroups tend to show similar patterns for the Solution Influence rankings as well.
  - Ranking by rural and rural, hub subgroups follow the same general pattern for the first six items and most of the top 13 items (Figures 16, 17).
  - Ranking by rural, road system and urban are also much closer in their patterns of rank and weight than with the other locations for the first six items (Figure 16).
- Preference Scores across Location subgroups show alignment in weight for some Personal Importance items, although each subgroup may have higher and lower weighted items hugely different from each other.
  - Items of similar weight in the top 15 list include *positive workplace conditions*, *quality support from principal(s)*, and *quality support from district administration*.
  - Items with the widest variation in weight in the top 15 list include *manageable workload* and *time to adequately prepare*.

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<sup>5</sup> Calculated from student counts by district in school year 2020-21 downloaded from <https://education.alaska.gov/data-center>, accessed April 1, 2021, and teacher counts from DEED provided data.

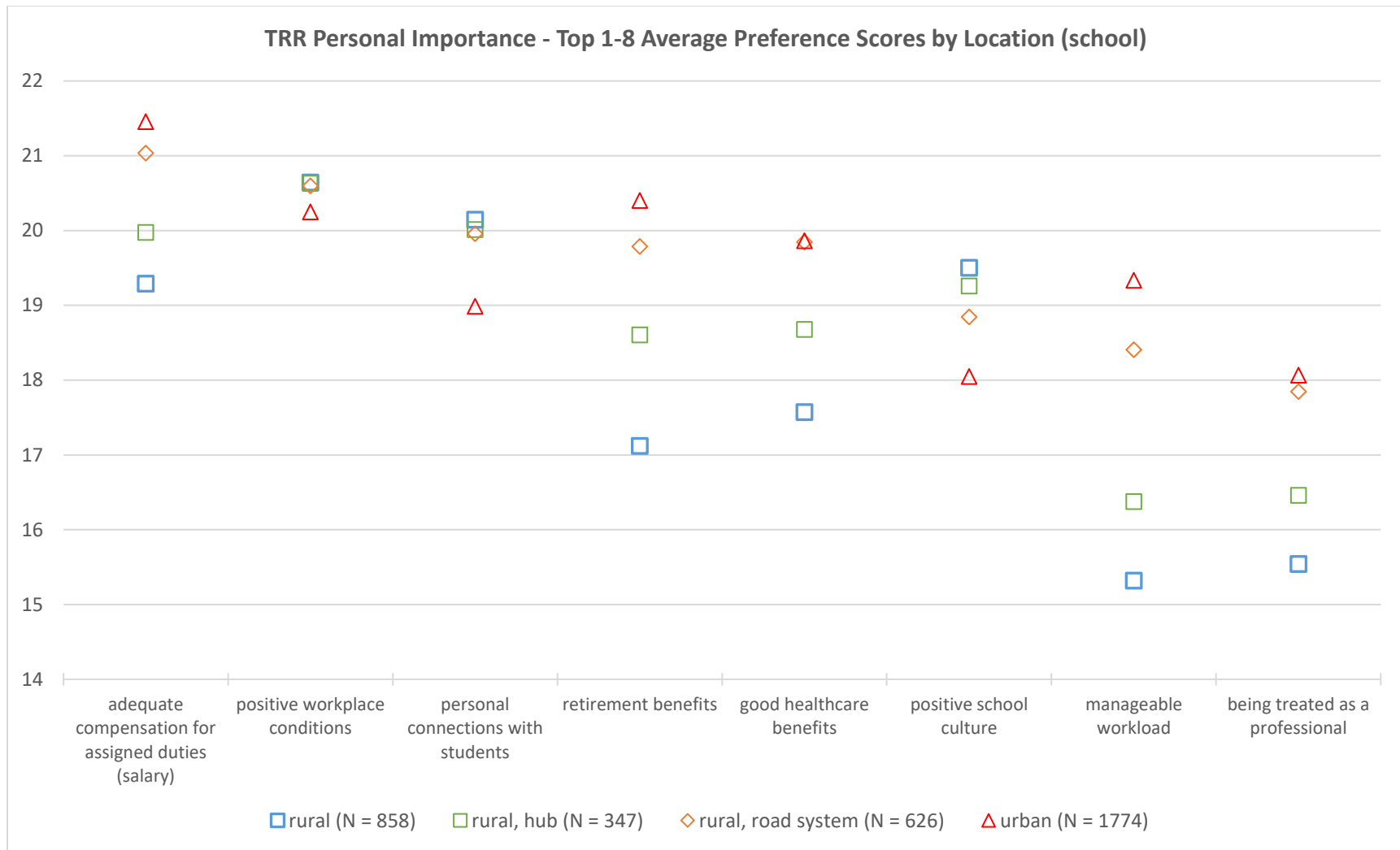


Figure 14: Preference scores for top 16 Personal Importance items divided by Location (school) (first 8 shown here, next 8 shown on following graph). Notice the overlap in scales for the weights between top 1-8 and top 9-16 items.

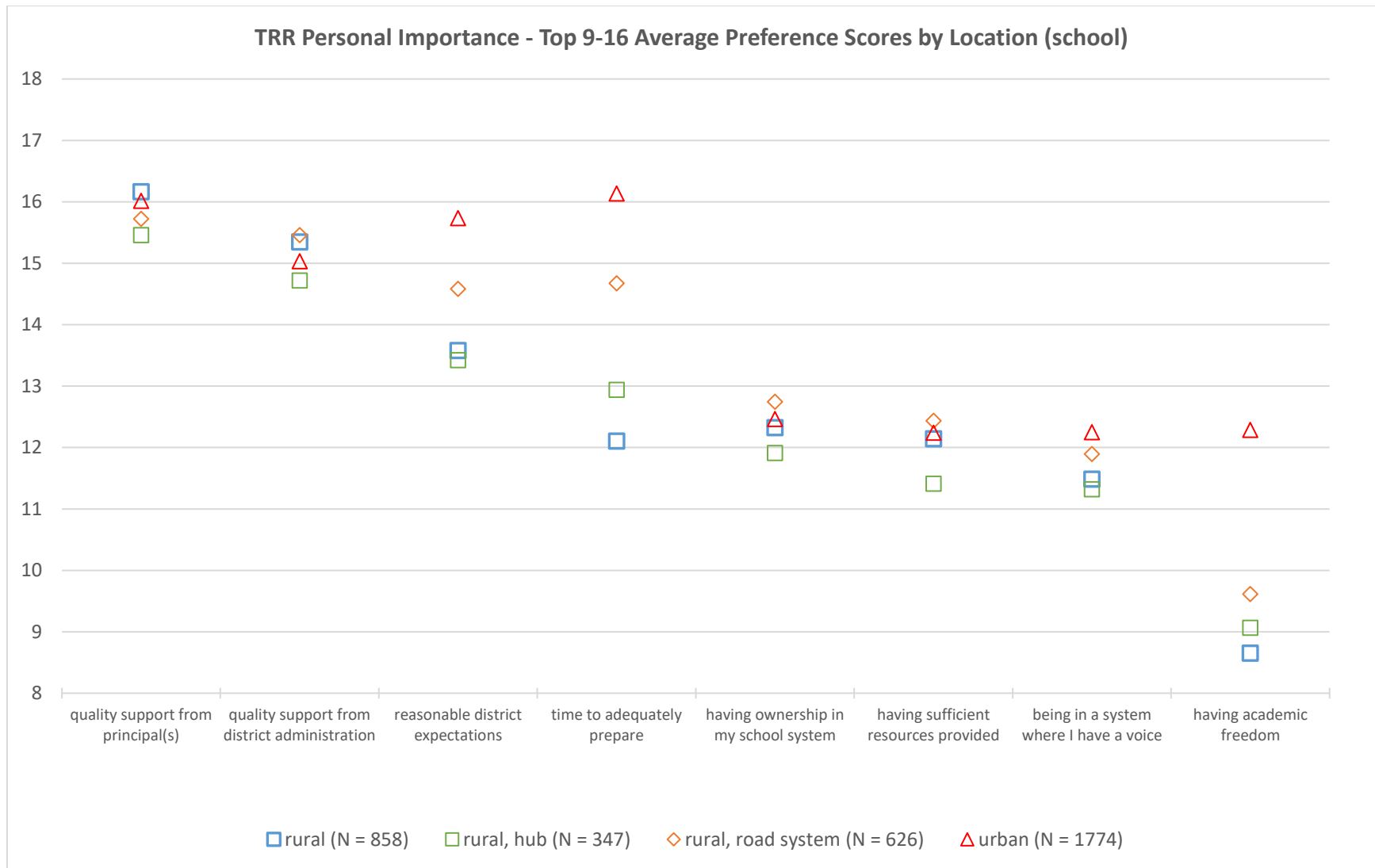


Figure 15: Preference scores for top 16 Personal Importance items divided by Location (school) (first 8 shown on previous graph, next 8 shown here). Notice the overlap in scales for the weights between top 1-8 and top 9-16 items.

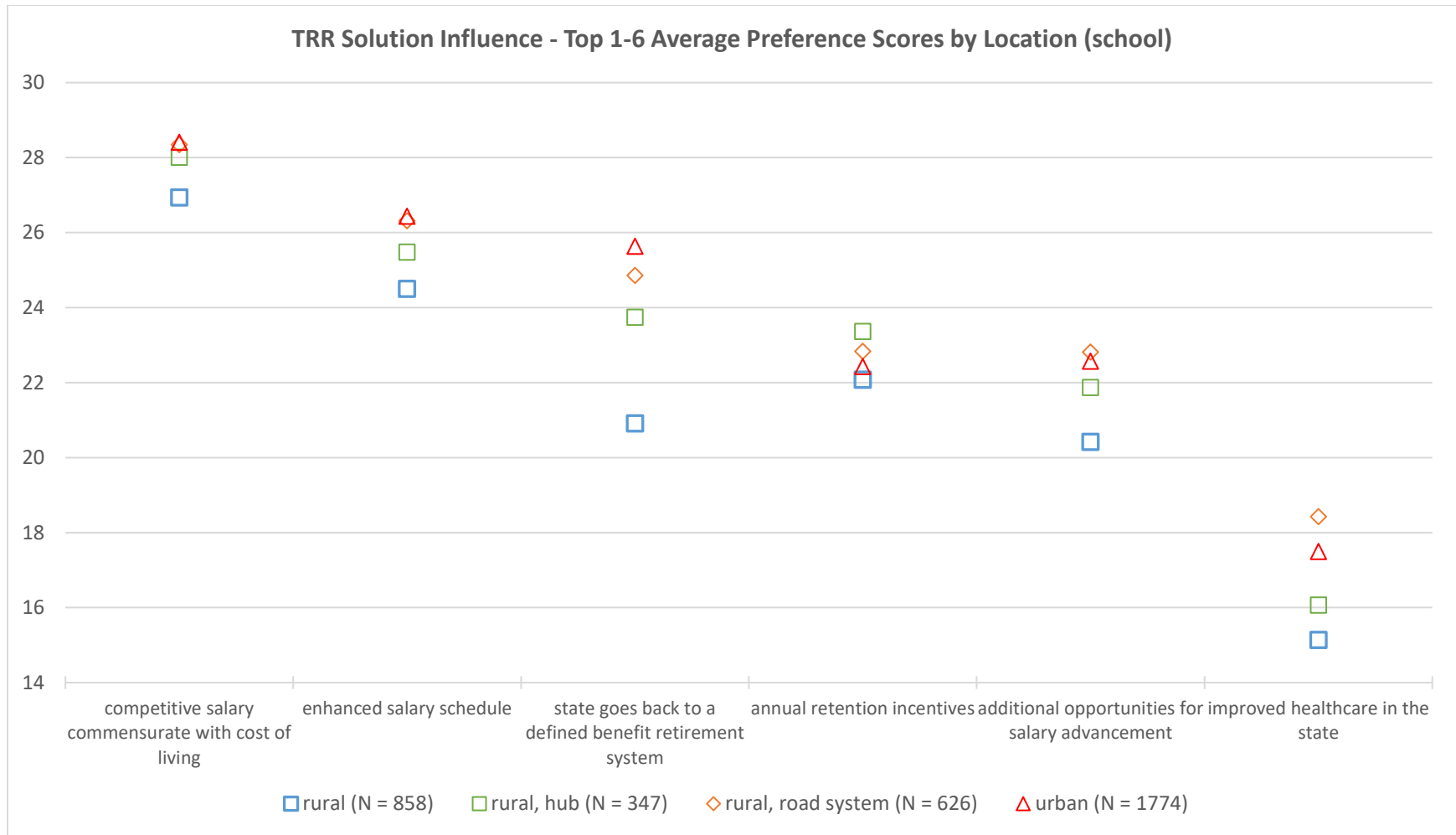


Figure 16: Preference scores for top 13 Solution Influence items divided by Location (school) (first 6 shown here, next 7 shown on following graph). Notice the overlap in scales for the weights between top 1-6 and top 7-13 items.

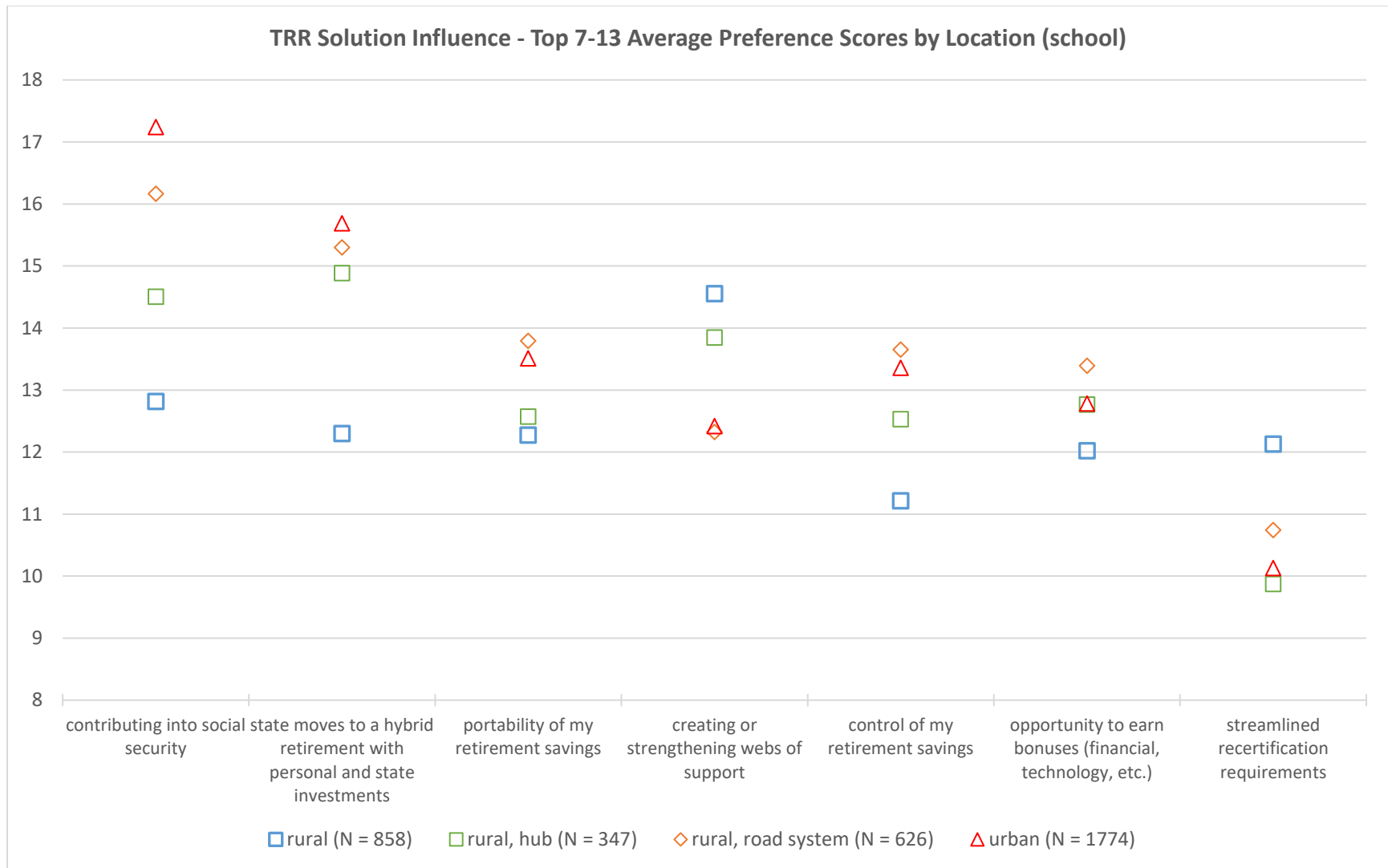


Figure 17: Preference scores for top 13 Solution Influence items divided by Location (school) (first 6 shown on previous graph, next 7 shown here). Notice the overlap in scales for the weights between top 1-6 and top 7-13 items.

**Retirement Tier:** The same Personal Importance and Solution Influence results are separated using the different tiers of the Teacher Retirement System (TRS) in the following graphs highlighting differences across another subgroup. In Alaska, TRS Tier I was offered from 7/1/1955 through 6/30/1990; Tier II after 6/30/1990 until 6/30/2006; and Tier III after 6/30/2006 until present ([https://doa.alaska.gov/drb/your\\_rnb/retiring/eligibility.html](https://doa.alaska.gov/drb/your_rnb/retiring/eligibility.html)). This variable is also a proxy for the pair of variables concerning years of experience given these timeframes.

Note: For this subgroup analysis the unclassified participants are not shown. Unclassified participants are those with no demographic information pertaining to Retirement Tier: N=615 for Personal Importance (out of N= 4223 total) and N=145 for Solution Influence (out of N=3753 total). Further, 489 participants selected Unsure as their response and another 152 selected Prefer not to answer, meaning they could fall into any of the three existing retirement tiers.

- Ranking by Retirement Tier lists the same top 6 Personal Importance items, but both the weight and order differ between the categories of Tier I, II, III (Figure 18).
  - Tier II and Tier III seem more aligned with each other than with Tier I participants.
  - All three tiers weighted workplace issues of *positive workplace conditions*, *personal connections with students*, and *positive school culture* similarly even if they ranked differently.
  - The ranking and weights of the financial items of *salary*, *retirement benefits*, and *good healthcare benefits* varied greatly across all three tiers. Tier II weighted all three items higher than Tier III with the next highest weights and Tier I with the lowest weights for those items.
  - Tier I ranks *positive workplace conditions* 1<sup>st</sup> (weight 19.1), Tier II ranks *retirement benefits* 1<sup>st</sup> (weight 20.3), and Tier III ranks *salary* 1<sup>st</sup> (weight 19.8).
- Ranking by Retirement Tier lists the same top 5 Solution Influence items (Figure 20) with wide inconsistencies in the next top 6-10 and top 11-20 items (Figures 21-22).
  - Agreement on Solution Influence for ranking 1<sup>st</sup> is consistent across Tier I, II, and III: *competitive salary commensurate with cost of living* with weights over 26.
  - Solution Influence items relating to retirement solutions (5 in total) fall in the top 10 for the full results, yet the solutions are contradictory to each other in some cases and the subgroup rankings do not shed additional light on which may be best for the state system.
  - Although Personal Importance items had more workplace condition items fall in the top 15 than financial items, the Solutions Influence results have 11 out of the top 12 identifying financial items connected to salary, retirement, and healthcare benefits.

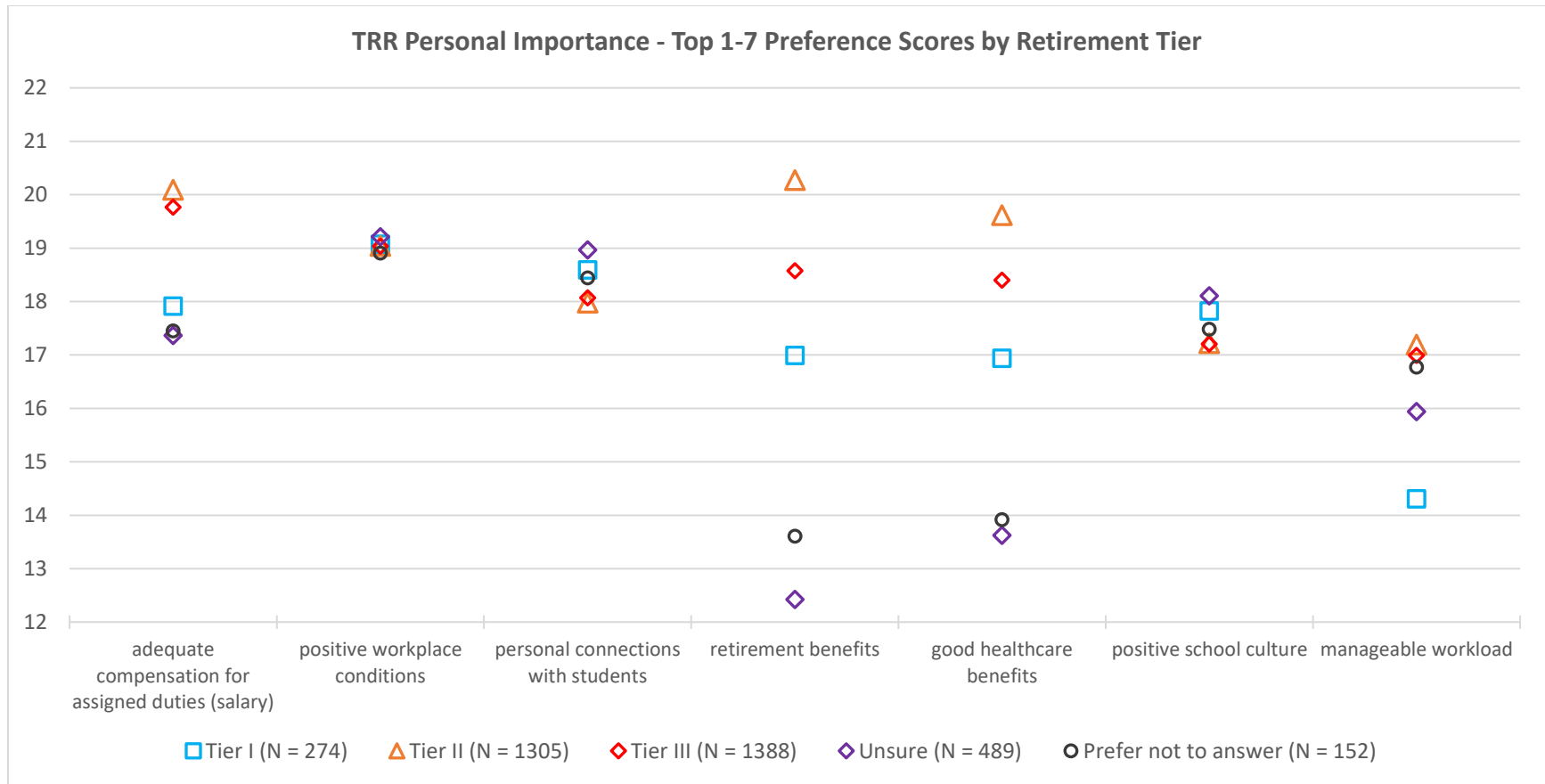


Figure 18: Preference scores for top 15 Personal Importance items separated by Retirement Tier (first 7 shown here, next 8 shown on following graph). Notice the overlap in scales for the weights between top 1-7 and top 8-15 items.



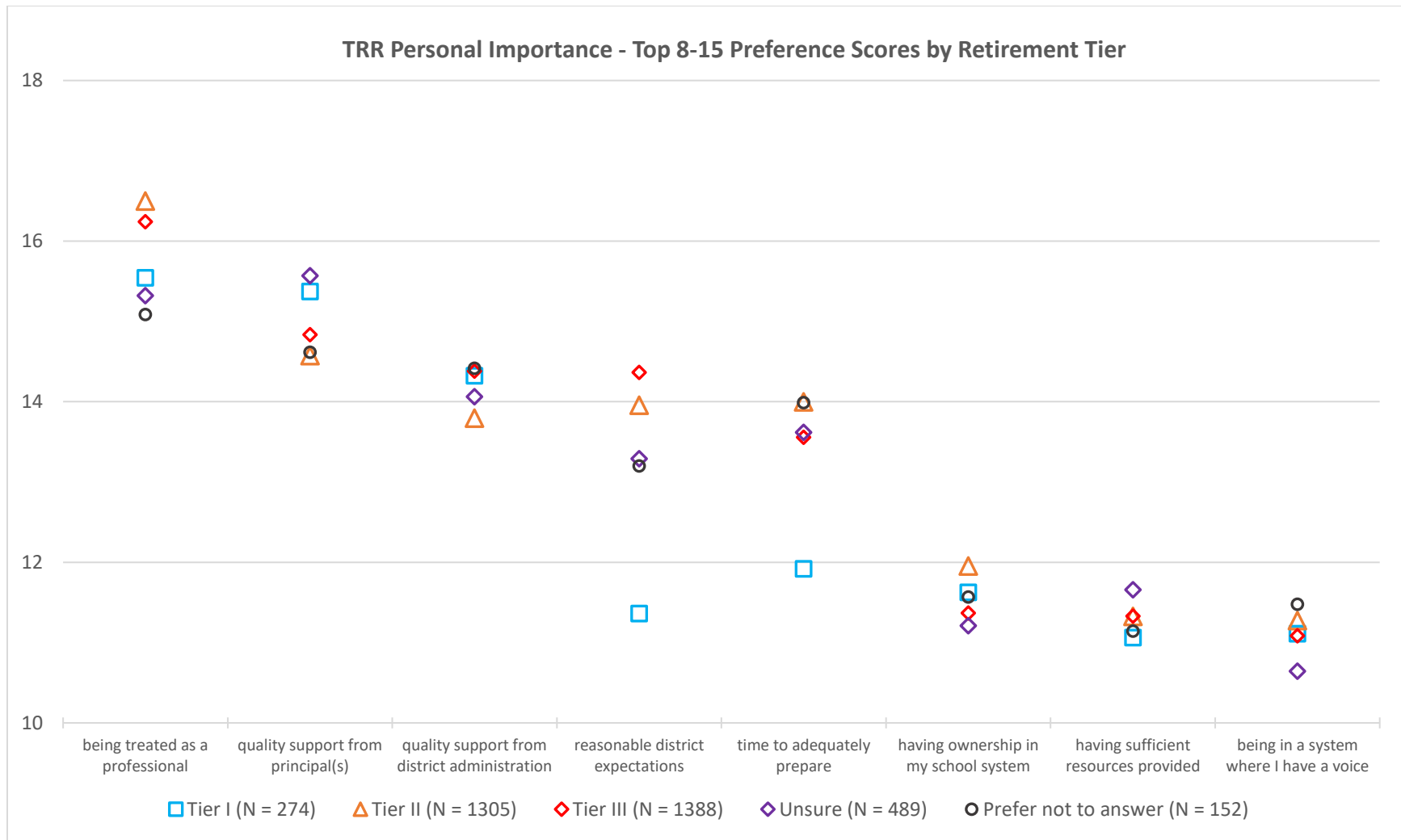


Figure 19: Preference scores for top 15 Personal Importance items separated by Retirement Tier (first 7 shown on previous graph, next 8 shown on here). Notice the overlap in scales for the weights between top 1-7 and top 8-15 items.

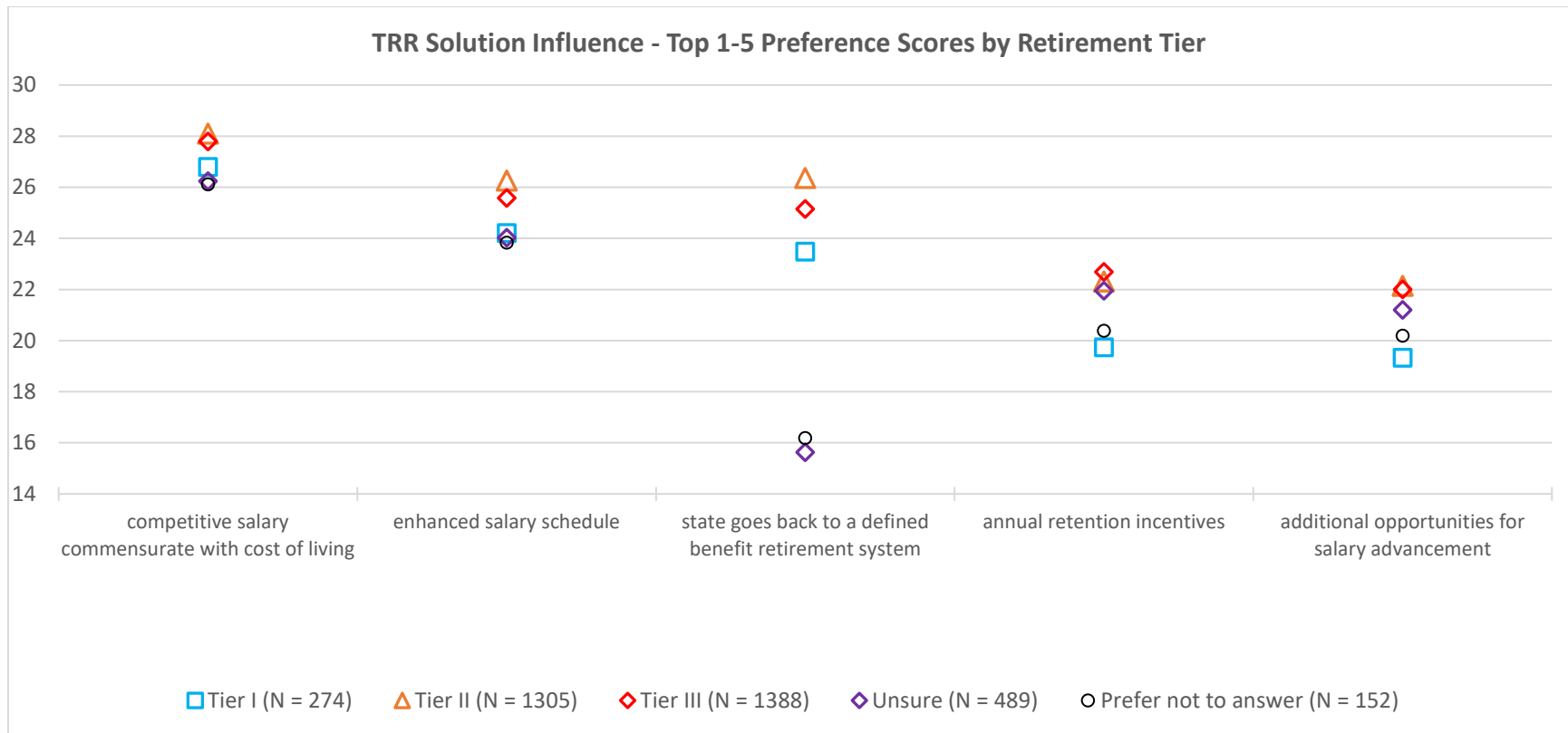


Figure 20: Preference scores for top 20 Solution Influence items separated by Retirement Tier (first 5 shown here, next 15 shown on following graphs). Notice the overlap in scales for the weights between top 1-5 and top 6-10 items.

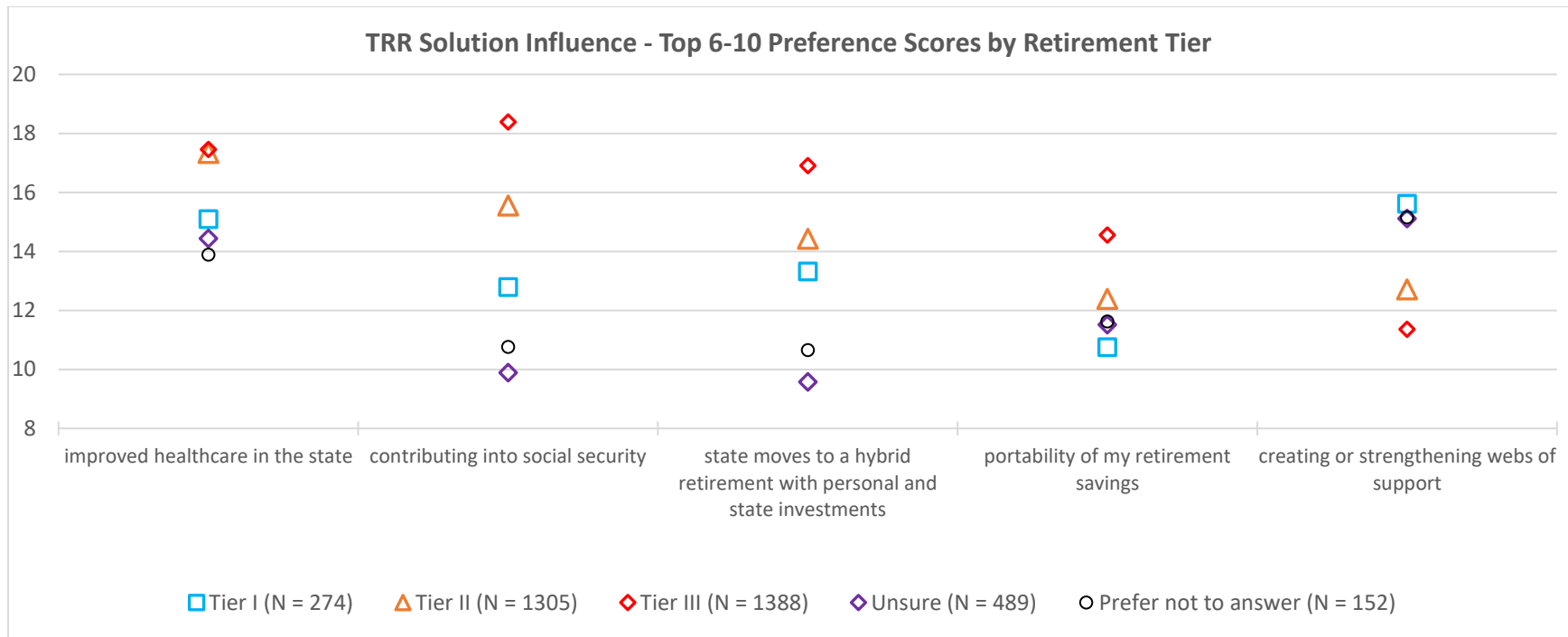


Figure 21: Preference scores for top 20 Solution Influence items separated by Retirement Tier (first 5 on previous graph; second 5 shown here; next 10 shown on following graph). Notice the overlap in scales for the weights between top 1-5 and top 6-10 items as well as the overlap in scales for the weights between top 6-10 and top 11-20 items.

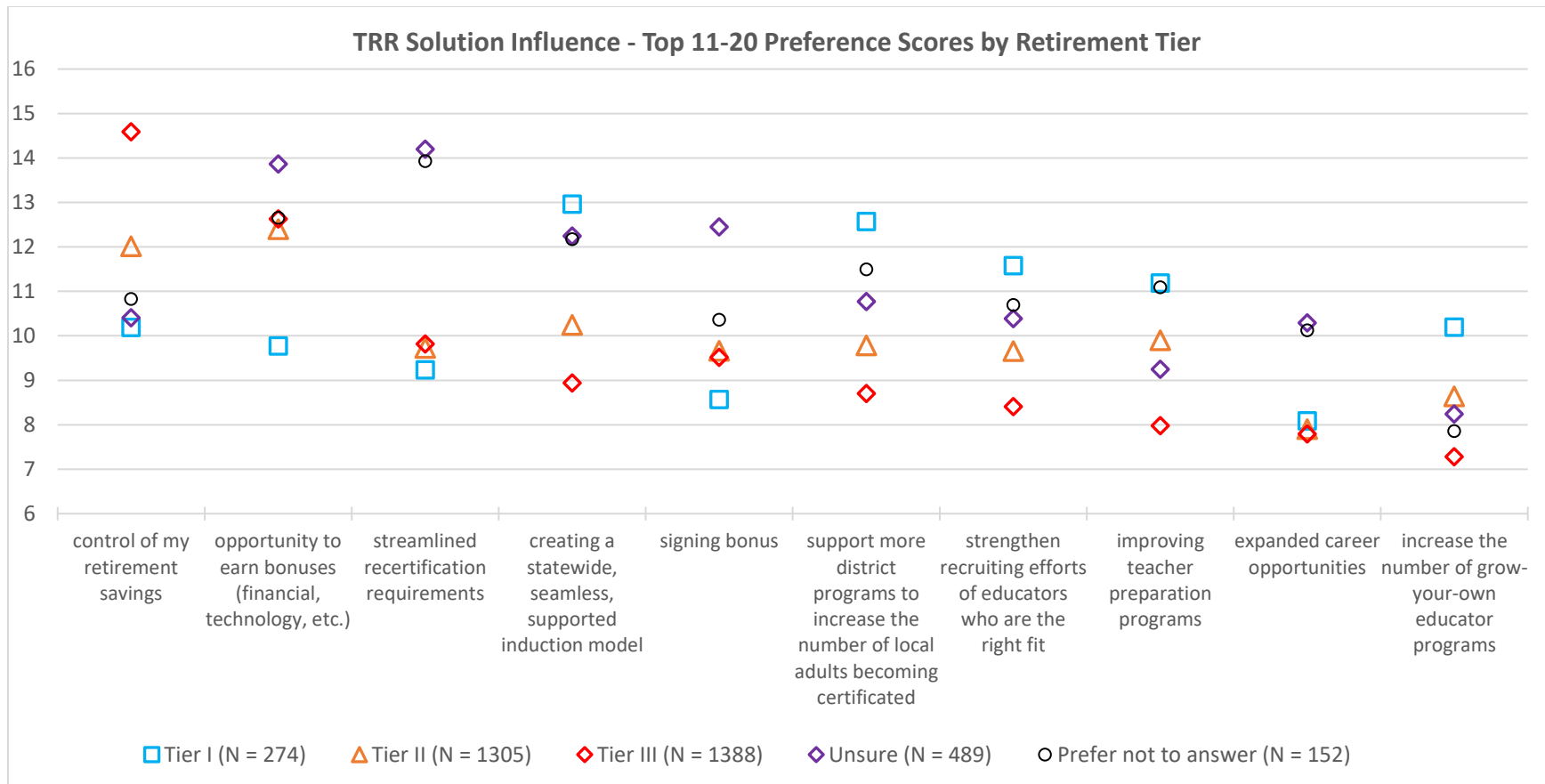


Figure 22: Preference scores for top 20 Solution Influence items separated by Retirement Tier (first 10 shown on previous graphs, next 10 shown here). Notice the overlap in scales for the weights between top 6-10 and top 11-20 items.

**Gender:** Lastly, the same Personal Importance and Solution Influence results are partitioned using the Gender variable in the following graphs highlighting differences across the fourth and final subgroup analyzed.

Note: For this subgroup analysis the unclassified participants are not shown. Unclassified participants are those with no demographic information pertaining to Gender: N=615 for Personal Importance (out of N= 4223 total) and N=145 for Solution Influence (out of N=3753 total). Further, 138 selected Prefer not to answer meaning they could fall into any of the three gender categories provided. Lastly, caution should be used in interpreting results for the other subgroup given the small sample size, only N=9 (0.25% of the sample distribution). Further, since the other category is not a classification currently collected in state data, there is a high uncertainty of the representativeness of that category.

- Ranking by Gender shows a different pattern for each subgroup when considering the top 10 Personal Importance items (Figure 23). Further, weights show differences in strength of preference as well.
  - Participants identifying as female rank *positive workplace conditions* (weight 18.9), *salary* (weight 18.6), *personal connections with students* (weight 17.9), and *retirement benefits* (weight 17.3) as their top four items, in that order.
  - Participants identifying as male rank *salary* (weight 20.2), *retirement benefits* (weight 18.9), *positive workplace conditions* (weight 18.6), and *good healthcare benefits* (weight 18.6) as their top four, in that order.
  - Participants identifying as other rank *good healthcare benefits* (weight 17.5), *personal connections with students* (weight 17.1), *positive workplace conditions* (weight 16.9), and *being in a system where I have a voice* (weight 16.4) as their top four, in that order.
  - Participants who preferred not to specify gender do not align with any of the other categories in their pattern: *salary* 1<sup>st</sup> (weight 19.1), *positive workplace conditions* 2<sup>nd</sup> (weight 18.1), *manageable workload* 3<sup>rd</sup> (weight 17.9) and *retirement benefits* 4<sup>th</sup> (weight 17.9).
- Ranking by Gender for the top 10 Solution Influence items (Figures 24, 25) show much more agreement among subgroups.
  - Participants identifying as female, male, and those who preferred not to identify their gender were generally consistent in ranking the first five items and the associated preference scores.
  - Other category ranked *support more district programs to increase the number of local adults becoming certificated* as 5<sup>th</sup>, an item that ranks 16<sup>th</sup> overall in the full results.

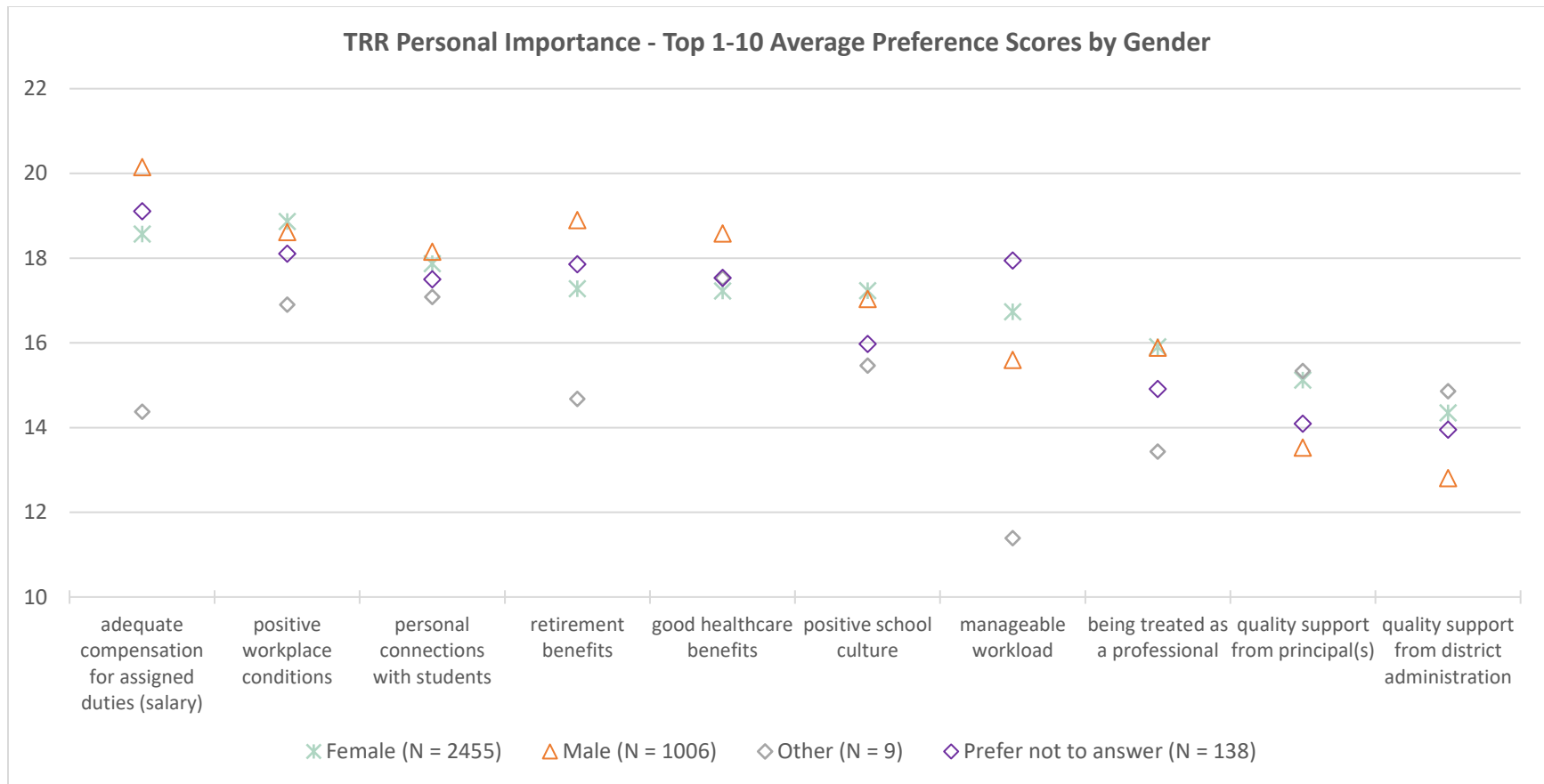


Figure 23: Preference scores for top 10 Personal Importance items partitioned by Gender.

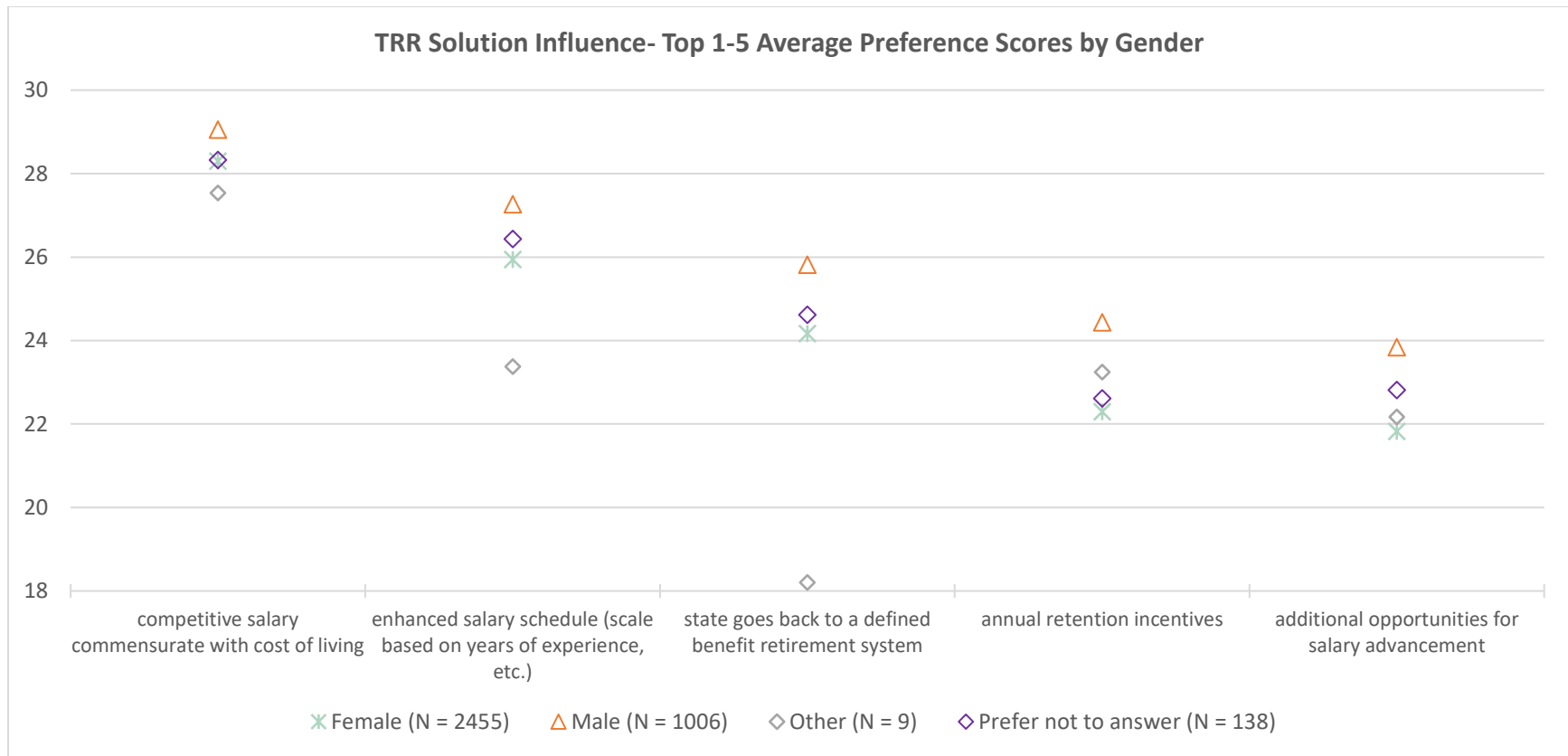


Figure 24: Preference scores for top 10 Solution Influence items partitioned by Gender (first 5 shown here, next 5 shown on following graph).

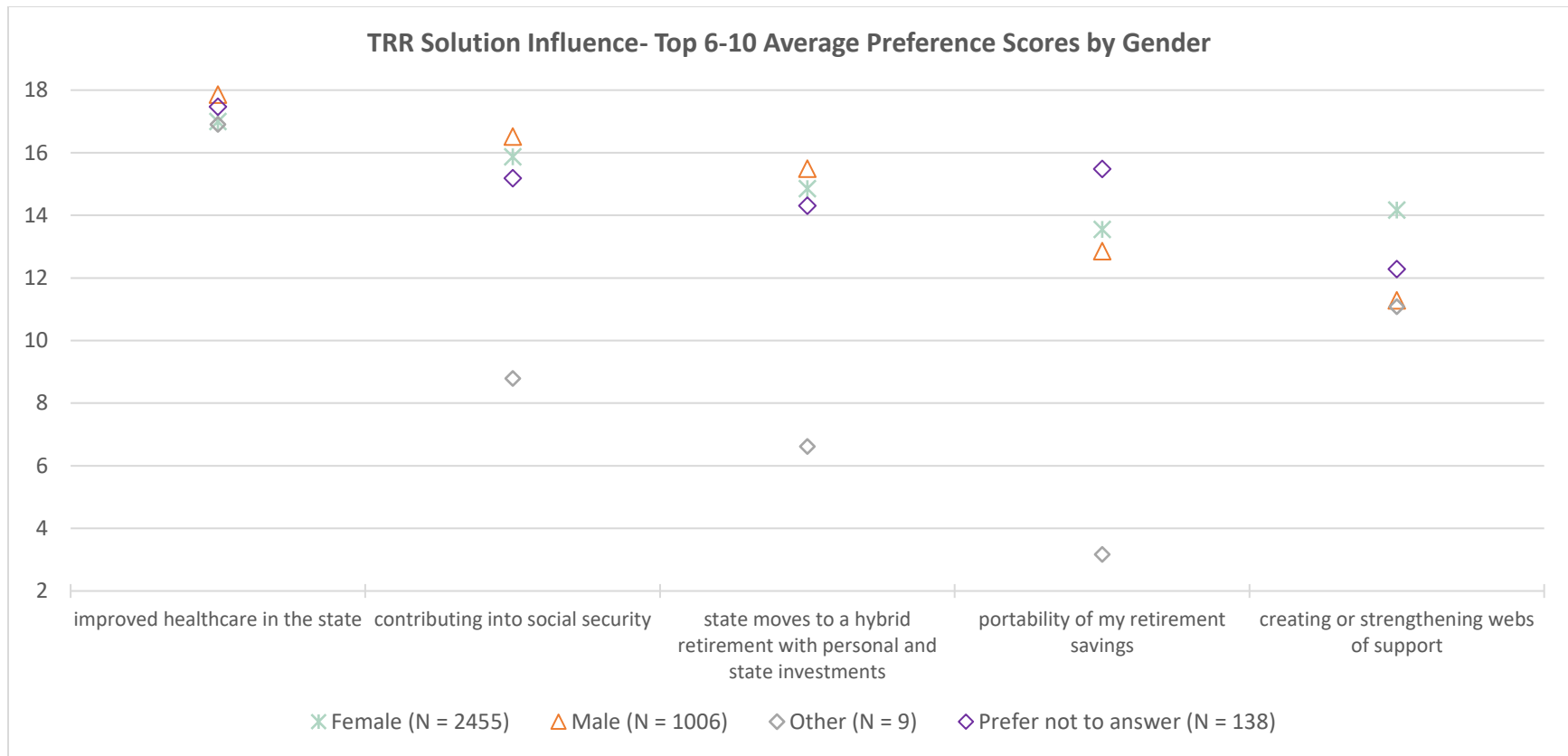


Figure 25: Preference scores for top 10 Solution Influence items partitioned by Gender (first 5 shown on previous graph, next 5 shown here).



## TURF Analysis

The Best-Worst Scaling survey technique along with HB analysis provides the opportunity for an additional analysis called Total Unduplicated Reach and Frequency (TURF). Through TURF all combinations of items can be analyzed to determine the reach and frequency of selecting that combination. The combination of items is called a portfolio usually containing 2-5 items from the Best-Worst Scaling item list. Reach refers to the number of participants that can be reached if that portfolio is selected. Frequency is the number of times that portfolio reaches people<sup>ix</sup>.

In the context of this study, TURF provides portfolio options separately for Personal Importance items and for Solution Influence items that can be used to understand the potential reach of associated recommendations for the given sample of participants. It may be useful to think of reach as potential buy-in based on the sample. In this analysis, items can be removed from portfolios to gauge reach without them. For this study, removal of items for practical purposes provides multiple perspectives of creating buy-in with associated recommendations. Six separate investigations were conducted and include 3 and 4 items per portfolio with generation of 15 (for 3 items) or 20 (for 4 items) portfolios in each case. Frequency was not assessed.

For Personal Importance Items, cases include all items, removal of the top three financial items, and removal of an additional four items that are less likely to be influenced in the next several years due to financial considerations or reasons out of the control of policy makers (for example, *positive public views of the profession*). Options for various results are provided below in the TURF Results organized from highest to lowest reach. The top three financial items specifically are *salary*, *retirement benefits*, and *good healthcare benefits*. Additional items removed for one of the investigations include *positive public views of the profession*, *being treated as a professional*, *opportunity for quality*, *affordable housing*, and *access to good internet services*.

For Solution Influence Items, cases include all items, removal of the top two financial items, and removal of an additional ten items that are less likely to be influenced in the next several years due to financial reasons or reasons out of the control of policy makers. For these items, prohibitions were also employed. Prohibitions refer to separating items from appearing at the same time. Two sets of prohibitions were used during all TURF for Solution Influence, one around incentives [*opportunity to earn bonuses (financial, technology, etc.)*, *signing bonus*, and *national board certification bonus*] and a second around retirement changes [*state goes back to a defined benefit retirement system*, *contributing into social security*, *state moves to a hybrid retirement with personal and state investments*, *portability of my retirement savings*, *control of my retirement savings*]. The top two financial items specifically are *competitive salary commensurate with cost of living* and *enhanced salary schedule (scale based on years of experience, etc.)*. Note that the prohibition around incentives is just a practical matter as all three items could exist simultaneously. However, the prohibition around retirement is essential as the items are essentially mutually exclusive.

## TURF Results for Personal Importance

Options are created from the investigations described above with details and results here.

*Table 6: Attributes of the various TURF results for Personal Importance investigations.*

# of portfolios	# of items	removed items	reach range	option below
20	4	none	98.2 – 98.4%	A
20	4	big 3 \$	97.1 – 97.8%	B
20	4	7 total	96.8 – 97.4%	C
15	3	none	96.9 – 97.7%	D
15	3	big 3 \$	95.5 - 96.7%	E
15	3	7 total	94.9 – 96.4%	F

### Option A

Portfolios include combinations of the top 10 items: *salary, retirement benefits, positive workplace conditions, personal connections with students, good healthcare benefits, quality support from district administration, being treated as a professional, quality support from principal(s), positive school culture, and manageable workload.*

The highest reach, 98.4% is found using the portfolio of *salary, positive workplace conditions, positive school culture, and personal education philosophy.*

Out of the 20 options, 3 portfolios formed without salary; the highest reach of those, 98.2%, includes *retirement benefits, manageable workload, personal connections with students, and being treated as a professional.*

The lowest reach in this option, 98.1%, includes *salary, quality support from district administration, personal connections with students, and being treated as a professional.*

### Option B

Portfolios without the top 3 highest financial items (*salary, retirement benefits, and good healthcare benefits*) include combinations of the following 13 items: *positive workplace conditions, manageable workload, personal connections with students, being treated as a professional, positive school culture, quality support from district administration, quality support from principal(s), time to adequately prepare, having sufficient resources provided, having ownership in my school system, reasonable district expectations, collegiality among educators and staff, and opportunity for quality, affordable housing.* Underlined items are new for Option B compared to Option A.

The highest reach in this option, 97.8% is found using the portfolio of *positive workplace conditions, manageable workload, personal connections with students, and being treated as a professional.*

The four most frequent items available across all 20 option sets were *manageable workload* and *personal connections with students*, which each appeared in 18 options, followed by 14 appearances for *being treated as a professional*, and nine inclusions of *positive workplace conditions*. Of course, there were also a number of option sets in which one or more of these items appeared.

The lowest reach in this option, 97.1%, includes *positive workplace conditions*, *manageable workload*, *personal connections with students*, and *opportunity for quality, affordable housing*.

### Option C

The final investigation using 20 portfolios of four items removed the following seven items: *adequate compensation for assigned duties (salary)*, *retirement benefits*, *good healthcare benefits*, *positive public views of the profession*, *being treated as a professional*, *opportunity for quality, affordable housing*, and *access to good internet services*.

The following 15 items are contained in the portfolios under Option C with items underlined if new from Option B: *positive workplace conditions*, *manageable workload*, *quality support from district administration*, *personal connections with students*, *positive school culture*, *quality support from principal(s)*, *having ownership in my school system*, *having academic freedom*, *being included in shared decision making*, *being in a system where I have a voice*, *having sufficient resources provided*, *reasonable district expectations*, *time to adequately prepare*, *opportunity to develop my craft as an educator*, and *ability to stay connected to family*.

The highest reach in this option, 97.4% is found using the portfolio of *positive workplace conditions*, *manageable workload*, *quality support from district administration*, and *personal connections with students*.

Of the 20 options, seven of them include an item that is found in only one portfolio: *being included in shared decision making*, *being in a system where I have a voice*, *having sufficient resources provided*, *reasonable district expectations*, *time to adequately prepare*, *opportunity to develop my craft as an educator*, and *ability to stay connected to family*.

The lowest reach in this option, 96.8%, includes *manageable workload*, *positive school culture*, *having sufficient resources provided*, and *personal connections with students*.

### Option D

Portfolios include combinations of three of the following 11 items: *salary*, *retirement benefits*, *positive workplace conditions*, *personal connections with students*, *good healthcare benefits*, *quality support from district administration*, *being treated as a professional*, *quality support from principal(s)*, *positive school culture*, *manageable workload*, and *having ownership in my school system*.

The highest reach in this option, 97.7% is found using a portfolio of *salary*, *positive workplace conditions*, and *personal connections with students*.

The lowest reach in this option, 96.9%, includes *salary, personal connections with students, and having ownership in my school system.*

#### Option E

Portfolios include combinations of three of the following eight items: *positive workplace conditions, personal connections with students, quality support from district administration, being treated as a professional, quality support from principal(s), positive school culture, manageable workload, time to adequately prepare, and having ownership in my school system.*

The highest reach in this option, 96.7% is found using a portfolio of *manageable workload, personal connections with students, and being treated as a professional.*

The lowest reach in this option, 95.5%, includes *manageable workload, personal connections with students, and having ownership in my school system.*

#### Option F

Portfolios include combinations of three of the following 12 items: *positive workplace conditions, personal connections with students, quality support from district administration, quality support from principal(s), positive school culture, manageable workload, time to adequately prepare, reasonable district expectations, having sufficient resources provided, having ownership in my school system, being included in shared decision making, and being in a system where I have a voice.*

The highest reach in this option, 96.4% is found using a portfolio of *positive workplace conditions, manageable workload, and personal connections with students.*

The lowest reach in this option, 94.9%, includes *time to adequately prepare, quality support from district administration, and personal connections with students.*

In summary, the various TURF portfolios within the six options provide support for recommendations that may combine the same type of items as found in the results. Although specific buy-in will rest on the recommendations themselves and the communication of them, these results provide a starting point to connect research results to practical, policy, and professional implications.

## TURF Results for Solution Influence

Options are created from the investigations described above with details and results here.

*Table 7: Attributes of the various TURF results for Solution Influence investigations.*

# of portfolios	# of items	removed items	reach range	option below
20	4	none	98.4 – 98.7%	Q
20	4	big 2 \$	96.7 – 97.2%	R
20	4	12 total	89.6 – 90.9%	S
15	3	none	97.4 – 98.2%	T
15	3	big 2 \$	95.2 - 96.1%	U
15	3	12 total	92.5 – 94.3%	V

### Option Q

Portfolios include combinations of four of the 19 items from the complete list of 34 Solution Influence items.

The highest reach in this option, 98.7% is found using a portfolio of *state goes back to a defined benefit retirement system, competitive salary commensurate with cost of living, creating or strengthening webs of support, and support more district programs to increase the number of local adults becoming certificated.*

The lowest reach in this option, 98.4% is found using a portfolio of *state goes back to a defined benefit retirement system, expanded career opportunities, competitive salary commensurate with cost of living, and creating or strengthening webs of support.*

### Option R

Portfolios include combinations of four of the 15 items from 32 of the of the 34 Solution Influence items listed.

Among portfolios in this option, a reach of 96.8% is found using a portfolio of *state moves to a hybrid retirement with personal and state investments, enhanced salary schedule, creating or strengthening webs of support, and support more district programs to increase the number of local adults becoming certificated.*

The lowest reach in this option, 96.7% is found using a portfolio of *annual retention incentives, improving teacher preparation programs, enhanced salary schedule, and creating or strengthening webs of support.*

### Option S

With 12 of the items removed referencing salary, incentives, and retirement solutions, this option has portfolios containing combinations of four of the 13 items from the 22 items remaining in the Solution Influence list.

The highest reach in this option, 90.9% is found using a portfolio of *expanded career opportunities, streamlined recertification requirements, creating or strengthening webs of support, and support more district programs to increase the number of local adults becoming certificated.*

Replacing just one item in the highest reach with another similar option slightly drops the reach to 90.2% and uses a portfolio of *expanded career opportunities, streamlined recertification requirements, creating or strengthening webs of support, and increase the number of grow-your-own educator programs.*

The lowest reach in this option, 96.7% is found using a portfolio of *improving teacher preparation programs, increased mental health support for educators, streamlined recertification requirements, and creating or strengthening webs of support.*

#### Option T

Portfolios include combinations of three of the 14 items from the complete Solution Influence list of 34 items.

The highest reach in this option, 98.2% is found using a portfolio of *state goes back to a defined benefit retirement system, competitive salary commensurate with cost of living, and creating or strengthening webs of support.*

Among the lowest reach in this option, 97.4% is found using a portfolio of *annual retention incentives, expanded career opportunities, competitive salary commensurate with cost of living, and creating or strengthening webs of support.*

#### Option U

Portfolios include combinations of three of the 13 items from 32 of the 34 Solution Influence list items.

The highest reach in this option, a reach of 96.1% is found using a portfolio of *annual retention incentives, enhanced salary schedule, and creating or strengthening webs of support.*

The lowest reach in this option, 95.2% is found using a portfolio of *contributing into social security, enhanced salary schedule, and creating a statewide, seamless, supported induction model.*

#### Option V

With 12 of the items removed referencing salary, incentives, and retirement solutions, this option has portfolios containing three of the 13 items from the remaining 22 items on the Solution Influence list.

The highest reach in this option, 94.3% is found using a portfolio of *additional opportunities for salary advancement, creating or strengthening webs of support, and support more district programs to increase the number of local adults becoming certificated*.

Replacing just one item in the highest reach with another similar option slightly drops the reach to 93.6% and uses a portfolio of *additional opportunities for salary advancement, creating or strengthening webs of support, and increase the number of grow-your-own educator programs*.

The lowest reach in this option, 92.5%, is found by replacing just one item in the highest reach, yet again providing a portfolio of *additional opportunities for salary advancement, creating or strengthening webs of support, and create and use statewide exit interviews to strengthen recruiting*.

In summary, the various TURF portfolios within the six options for Solution Influence provide support for recommendations that may combine the same type of items as found in the results. Given the higher degree of variability in the Solution Influence section of the survey, many of these portfolios include financial matters which may have support from the survey even if the state does not have the means to make those changes. It is heartening that, even at the lowest reach (92.5%), these workplace issues still provide high reach outcomes. As with the Personal Importance TURF results, specific buy-in will rest on the recommendations themselves and the communication of them. These results provide an additional support to connect research results to practical, policy, and professional implications.

## Qualitative Supplemental Study

Various supplemental forms of qualitative data collection were added to account for data points that were not addressed through the TRR Survey. The survey targeted people who held an active Alaska certificated teacher license, current as of October 2020, as referenced through the DEED database. Once that focus was determined, one area that was overlooked was an emphasis on leavers – educators who had been working in the state during the last two school years but no longer were. Interviews were conducted via Zoom or phone with a dozen leavers whose experience covered a variety of school situations, locations, roles, and service time. Each interview lasted no more than 10-minutes and used a semi-structured protocol.

Another area that fell outside the focus of the survey was participant perspectives on recruitment issues, rather than solely retention issues. Since most participants were currently employed educators, it might have been easy to forget about recruitment factors unless that experience was more recent for participants. Although items in the survey can be applied to both, additional data collection was conducted with current district recruiters to ensure the recommendations reflect a balance between retention and recruitment. Focus groups were held with urban and rural district personnel separately, using a semi-structured focus group protocol.

Lastly, the survey did not provide an area for comments, yet educators were able and encouraged to submit any comments they wanted to share via email. Comments were received throughout the survey period, responded to, and gathered for further analysis. Some comments expressed gratitude for the Working Group's effort while others expressed a strong disapproval of the survey process – usually taking issue with the best-worst scaling method. Most comments provided additional insights that elaborated on rankings, added new content, or enhanced the understanding of survey items.

All qualitative data were combined, coded, and analyzed using Atlas.ti software. From a former study, The Educator Quality and Quantity<sup>x</sup> (EQQ) Framework (Covey, Adams, & Wohlforth, 2015) was applied first as a structural coding, then the process used initial coding, followed by axial coding<sup>xi</sup>. A series of demographic codes were used to aid data organization and interpretation. For example, leaver, educator, and recruiter were used to organize the roles of participants and situate their comments properly. The code list in Appendix B shares all 59 codes and their definitions as used in this analysis.

Quotations were formed by selecting an appropriate amount of text to ensure enough context was provided while coding specific statements. Engaging in this process for all 85 pages of qualitative supplemental data that were collected produced 345 quotes with multiple attached codes. Of the 345 quotes, 37 focused on the survey itself with 32 of those providing a negative comment expressing frustration with the design. Although these were considered, they were presented separately from the content around the topics themselves.

Overall results shown in Table 8 demonstrate the codes organized by frequency of use. About one-third of the quotations are associated with the role of recruiters (103 out of 345) with slightly fewer from educators (93 quotes), and finally leavers (68 quotes). When possible, quotations were associated with location codes of rural remote, rural hub, rural road, and urban. About one-fifth of the quotations are associated with urban (75) or rural remote (73) participants. While many of the qualitative responses focused on experiences and suggestions, there were 99 that framed that experience in a negative statement. Here, “negative statement” does not imply a value judgement, but rather serves as a means of keeping ideas organized. For example, one participant's comment regarding benefits was also coded negative.

*I came to Alaska because I love the outdoors. I plan on leaving in a few years because of the tier 3 retirement. I am currently obtaining a nationally certified teacher certification and pursuing a master's degree. I would plan to stay long term if the retirement improved.*

*Bottom line- the best way to attract and retain highly qualified teachers is to improve the retirement.*

While another participant wrote about benefits and specifically Tier III status without presenting a negative thought.

*It is different, it doesn't mean it's any lesser. I compare it to a 401K. It's what 99% corporate America gets. It's portable.*



Table 8: List of codes ordered by frequency with the left side showing the most used and the right side showing most of the remaining codes. An additional 6 codes fall below Commitment with either 1 or 0 uses.

Name	Grounded
○ R- recruiter~	103
○ negative	99
○ R- educator~	93
○ L- urban~	76
○ L- rural remote~	73
○ R- leaver~	68
● Benefits~	43
● Leadership~	40
● Conditions~	38
○ Survey~	37
● D- state~	32
● Issue~	32
● D- district~	31
● Incentive~	29
● D- SOE~	28
○ R- retired~	27
● Technology~	26
● Community~	26
● Experience~	24

Name	Grounded
○ Students~	21
● Funding~	21
● Recruitment~	20
● Compensation~	19
● Certification~	18
○ L- rural road~	17
● Support~	17
● Value~	17
○ L- rural hub~	16
○ Career path~	16
● Partnerships~	16
● Governance~	16
● Pay~	16
● Communication~	16
○ Family~	13
● ProfDev~	10
● Demands~	10
● Culture~	10
○ Health~	9
● D- university~	9
● Retention~	8
● Data~	7
● Staff~	7
● Isolation~	6
○ Mental health~	6
● Travel~	6
● Preparation~	6
○ Safety~	6
● Perception~	6
● D- organization~	5
● Quality~	5
● Mentoring~	4
○ Violence~	3
● Commitment~	2

The first codes that show up identifying overall topics of interest across all data sources include Benefits (43 comments), Leadership (43 comments), and Conditions (38 comments). Each of these codes accounts for more than 10% of the total number of comments. Understanding comments associated with these codes may be best within the context of role.

For educators, the most predominant codes across the 93 comments include Benefits (28%), Conditions (11%), and Leadership (11%). Also, the educator comments (sent by email) that can be associated with a location included 14% rural remote and 14% urban. These few exemplars, presented verbatim without editing, demonstrate different opinions concerning retirement benefits, working and living conditions, and leadership:

- *The main driver for me coming to Alaska was the fact that I am in tier 2. The prospect of being able to retire after 25 years with a monthly check and full medical insurance was too hard to pass up. I have 6 years left to go and I will be 48 years old. Best decision I ever made. If it weren't for those perks, I probably would have left Alaska after the novelty wore off. I know it's expensive, but I think if the state moved back to a defined benefit program it would really help attract and retain teachers.*
- *I am in my fourth year as an educator in Alaska and have earned my Type B Certification with a goal to become a principal in a Native rural setting. I find every aspect of my experience in Alaska very fulfilling, with one exception: Retirement. I am a Tier 3 educator, which means my retirement plan is among the worst in the nation. Since 2017 I have spoken with new-to-Alaska principals and teachers in my age group about this problem. All of them have returned to the 48 because, despite above average salaries. When I think about retirement, I wonder how long I will remain here as well.*
- *The HUGE reality of teaching in AK is that salaries have stayed flat so that teaching in other states has become far more attractive, in addition to the AWFUL retirement system for all new teachers, which is the Tier III plan. Years and years of budget cuts to education make me think more and more of retiring early and teaching elsewhere with a defined benefit plan.*
- *Being in a remote interior village, these kids and DEED have the odds stacked against them, in my opinion. I see many expectations and demands being placed on school personnel without adequate resources, such as SPED personnel and services to properly carry out the wide duties truly needed for the populations served. At times, expected duties and responsibilities are in conflict with professional agreements. Basic human services in some of these remote locations may not even exist, as well. COVID concerns have added additional issues this year, as well. . . .It is really frustrating to teach these kids, without the necessary resources needed to reach each and every one of their needs.*
- *Housing in the villages is a nightmare! I'm not referring to the lack of plumbing, as that is part of the cultural experience, nor to the internet challenges, which can be mostly overcome, but rather to the requirement that adults are required to live with "room-mates" not of one's choosing. Most village teacher housing was built for couples or families. Most rural teachers, from outside, are single or choose to leave their families outside while they come to work. It is untenable to live with a crazy roommate while simultaneously learning a new culture and delivering a responsible, challenging and relevant education.*
- *Let's talk class size. On top of all the above mentioned difficulties involved with teaching in Alaska, let's talk classroom size. There is currently no limit. I know 6th grade teachers that had 36 students in their classroom. It is very time consuming to grade papers, enter grades, conference with parents, etc. when you have large class sizes. We need to set class size limits that are low, so teachers can teach effectively, and student have the best opportunity to learn.*
- *To make a very long story short.....leadership in each building is paramount as is the leadership at the top (superintendent) That year (2017-2018) I heard from many other teachers experiencing the same horrible working conditions as I did so my situation was not an isolated incidence. I absolutely loved my job prior to this year and believe I was one of your best teachers. WHY did I not have any avenues for help and why was this*

*principal allowed to continue this harassment? Your survey did not address harassment by a principal and school climate related to teachers. I was a veteran teacher who was highly respected by my colleagues but still had nowhere to turn for help. I can't imagine what a new teacher would do!*

- *In the districts where I worked, these are the reasons I left: the Principals and other Administrators are poorly trained. They are political and demeaning to employees. They have very few, if any, people skills. They may not come to Alaska like this, but it seems to be the culture of School Leadership in Alaska that they grow. I'm sure there are excellent Principals and District Administrators, but I only met a few. They lack leadership skills, and are unable to motivate, support and encourage teachers, so employees leave. . . . I have never been treated so poorly by Principals and Administrators in anywhere else except in Alaska. I would guess it must be difficult to remove a Principal or District Administrator, but I believe there would be a higher degree of retention of teachers and other support staff if the school leaders had administrative, leadership, and people skills.*

For leavers, the most predominant codes across the 68 comments include Issue (50%), Conditions (19%), and Students (19%). Also, the leaver comments (obtained by interviews) that can be associated with a location included 35% rural remote and 26% urban. The Issue code further breaks down into Students, Leadership, Community, Experience, Certification, Conditions, and Support. A few exemplars help to illuminate these points:

- *They ran the principal off the year before and the principal that replaced him had no idea what he was doing. He allowed the kids to roam the halls, to assault me, I wrote up a kid every day, sometimes up to 6 a day, sometimes 3 a period.*
- *Lack of support for teachers, admin lacked enforcement. I came with 22 years teaching in [another state] with kids at or above grade level, 4th and 5th graders. Reading was a problem there, but we work with what we get. AK kids would refuse to read. District had an adopted text that when I typed it into MS Word it was 11.5 reading level for 8th graders. Could not read in their fluency range. When I tried to amend what was in the test using more lower grade level material to read I got slammed with – fidelity to the curriculum. That's how it's done down south, we don't do that here in AK.*
- *The reason I told the community, because I did really care about the community, was that my mom was getting up there in years she is 76 and so I moved to [another state] to partially be closer to my family and my parents. The big reason was the isolation was bad for my mental health. Small, no roads, the medical did not cover mental health care, I was paying out of pocket for a therapist, email.*
- *Also, quite frankly, the whole process of getting certified to teach in Alaska after having taught in [another state] for over twenty years was very troublesome and having to take the Praxis to prove that I was qualified was ridiculous, in my humble opinion. New teachers fresh out of college with no experience in the classroom take the Praxis, not seasoned and Highly Qualified teachers according to the NCLB statute, although that law has by now been functionally replaced by some other.*
- *[If I could change one thing it would be] smaller classroom sizes. I had 40+ in a class, dealing with ELL, mixed abilities, behavior problems (upper pods would move kids to lower pods). So breaking classes down to be effective, allows you to be able to teach, meet them at the level of where they are at. Can't even do that given distractions of behaviors. According to policies, then principal comes in to undermine those policies (e.g., phones in lockers).*
- *As part of that . . . being able to add endorsements to your license would be good. We were able to do that [in another state]. Our school district every year had 15 national merit scholars, top notch school. We were able to have our standard license and add endorsements. . . . I didn't have the librarian media endorsement. I had experience. The hoops we had to jump through to add that would have cost \$20-\$30K, take loans and go back to school. In [another state] I could have taken the praxis and transferred over. Then you could have highly qualified teachers in areas not needed but could transfer over to another field.*

For retired educators, the most predominant codes across the 27 comments include Leadership (37%), Conditions (30%), and Governance (19%). Also, the retired comments (sent by email) were not associated with any predominant location.

- *As far as weak leadership... we always felt that we didn't have a really good way of evaluating our leaders. The Principal evaluation has many questions about curriculum but very few questions about actual leadership and how principals work with employees to motivate them and guide them. It would be amazing if the state required a more detailed and insightful staff survey where harmful leadership habits could be identified and addressed.*
- *An experienced Principal is critical. One with experience in Alaska and preferably with prior experience in the school or district. If you have a weak principal individual teachers will try to lead. A good principal works with his staff to build teamwork, congeniality and a communal sense of purpose. If the staff doesn't get along, working conditions are strained. In a village teachers have to get along and rely on each other for support.*
- *Providing decent housing for all teachers is important. Teachers who do not use district housing should be compensated in some way because district housing rental rates are usually very reasonable compared to rental or home owner payments.*
- *Another issue is that our district took on the use of scripted curriculum and though our union contract states "academic freedom" teachers were not given that right, at least at our school. I'm one teacher and I'm positive not all schools are like mine. Too many administrators have been moved up the ladder quickly and it appears that it's really who you know and not what you know that gets the job. Administrators need to have enough experience and be provided the correct training that will create positive school climates that will retain quality teachers. When teachers are treated like crap, they don't want to stay.*
- *Allow teachers to choose to teach at .2 and .4 (1-2 classes) and be in PERS instead. Since Form 2106 is gone but I still love teaching, I would love to have a couple 7-12 classes but still have my retirement income to live on.*
- *I DID NOT WANT TO RETIRE. I have 31 years of experience that the district did not care to figure out a way to help me with the current situation. I know many teachers that are leaving because of this lack of concern for employees. No amount of money can keep employees if the employee feels unsafe and undervalued by employers.*

Lastly, for recruiters, the most predominant codes across the 103 comments include Incentive (19%), Technology (19%), Funding (17%), and Communication (14%). Also, the recruiter comments (gathered during focus groups or sent by emails) that can be associated with a location included 33% rural remote and 43% urban. Exemplars demonstrate a variety of ideas around methods for recruiting teachers and growing supply:

- *In the 90s there was a big push for engineers and everyone got behind it. Now we have plenty of engineers in the state. I think we need to be recruiting teachers in the state, incentives, scholarships, reason to stay, programs that have been out there but how many have they really been working. We need to offer all kinds of incentives to become teachers, lots of people do not have the money for tuition, housing, books. . . . Loan forgiveness, tuition waivers, even for those from out of state.*
- *We do grow a lot of our own in LKSD. We have 62 teachers in the UAF ed program who are currently aides. It does take a lot of money. It takes forever for them to get through the program – working full time and subsistence lifestyle. Then we implemented 2 and done – after 2 years give them full salary to go to UAF 2 years and complete. That's where we have had the most success.*
- *Get people going to UA – incentives, housing waivers, tuition waivers, APS, push for people becoming teachers. Need good quality people in the system. . . . Get out and recruit from our communities. LKSD 2 to go sounds like a good idea. Need to get them through quicker.*

- *I've been playing with funding for this. Maybe have the state match funding and see if we all have skin in the game. Districts select potentials out of paraprofessionals, send to UA, share expenses with the state, result in people who want to be here. We need more people who aren't going to leave.*
- *We go back to APS money and use it within the K-12 construct, especially 11-12 graders. ANSEP has acceleration starting in 9th grade. Target kids in HS to enter a pathway in education. It's expensive to move up, attracting young teachers to come up unless they are getting some assistance.*
- *We've been working on, in particular to increase diversity, is grow your own programs. We would love to see partnerships – maybe tuition funding, pathway to education for HS funded (state of WA has done that), forgiveness incentives – anything to get HS kids to go into ed and teach in their communities*
- *We are doing more social media, we have seen a definite decrease in the number of career fairs we've attended in the past, so increase virtual presence.*
- *We also lean towards social media, virtual, getting our brand out there, showcasing our ASD culture – work here, live here, students, teachers, every facet of the SD. We don't attend in person job fairs, the local ones here we support, mostly virtual, social media type stuff.*
- *I lost a couple of candidates when we discussed a specific village and the applicant says, no I don't want go there. I googled it and the worst event shows up. I agree, overcoming the myths before it's cemented is a challenge.*
- *Not going to be any new money, I don't think this is needed. The money needs to be appropriated within what already exists. There needs to be a way to take a sliver into a pot of money, at the discretion of the commissioner, to engage in specific work each year, for example TRR, vocational / CTE, STEM, etc.*

Since topics of certification arose a few times in the survey, here are additional thoughts from the qualitative supplemental study.

- *I suggest changing certification requirements. Have students work through training and certification without the 4 years of college campus time as this restricts emotionally, financially, etc. Also, kiosk types of credit development recognized by the local district. There are many local paraprofessionals who would be able to thrive in this system to step up through the ranks until they are certified. Then have PRS transfer to TRS as they go through an induction program. Every time they hit a step or level they have a different certificate.*
- *DEED – change the law, ex certification, biggest for me reciprocity, why the additional test for cert, etc.*
- *On the positive side, the Cultural Sensitivity instruction that I had to take was both timely and worthwhile. Doing it online from my bush school was a challenge due to the barely adequate ADSL infrastructure, along with weather / bandwidth limitations on the local internet, at the time.*
- *What I was really bothered by is that they did not accept my credit from UAA that I took as teacher training through ASD. They didn't accept it even when I provided all the papers. I had 3 years experience FT music teacher [in another country] and they did not take that. I took that job. I was trying to be helpful to the community and HR didn't treat me with any respect. I had fun working with the kids. Central office, how they treated me was not good.*
- *I am a retired teacher from [another state] teaching my 4th year in Alaska. All my initial teaching certificates are done and am in the process of trying to get my professional certificate. I am struggling to prepare to take the Praxis 2. Struggling due to time, pressure, amount of material to study and covid. I have taught for over 35 years and Alaska still wants to test me? It makes me rethink my decision to stay in Alaska. I know of several other educators who are in the same boat with me. Teachers who have retired in the lower 48, but who may not remain in Alaska because of all the testing to get a professional certificate. I understand the need for testing for new teachers, but give us "older" teachers a break.*

## Layout from the online TRR survey via Sawtooth Software hosting

Considering only these factors, which is the **most important** and which is the **least important** of these factors in motivating you to continue teaching in Alaska at this time (even if they are not part of your current situation)?

(2 of 15)

Most Important		Least Important
<input type="radio"/>	reasonable district expectations	<input type="radio"/>
<input type="radio"/>	access to robust curricula	<input type="radio"/>
<input type="radio"/>	access to ongoing quality professional development	<input type="radio"/>
<input type="radio"/>	having sufficient resources provided	<input type="radio"/>

Click the 'Next' button to continue...

Back	Next
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Figure 26: Example of a question from Part 1 showing the prompt, layout, and 4 of the 40 options.

Please consider how influential you believe these different solutions may be in improving teacher retention and recruitment in Alaska. Considering only these ideas, which do you believe may be the **most influential** and which may be the **least influential**?

(7 of 15)

Most Influential		Least Influential
<input type="radio"/>	competitive salary commensurate with cost of living	<input type="radio"/>
<input type="radio"/>	availability of supplemental or extracurricular contracts	<input type="radio"/>
<input type="radio"/>	portability of my retirement savings	<input type="radio"/>
<input type="radio"/>	streamlined recertification requirements	<input type="radio"/>

Click the 'Next' button to continue...

Back	Next
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Figure 27: Example of a question from Part 2 showing the prompt, layout, and 4 of the 34 options.

## Definitions

The following definitions pertain to the Best-Worst Scaling method of survey design, implementation, and analysis.

• Best-worst scaling	A survey method that allows for more detailed ranking analysis than ranking alone.
• Fit statistic	A score calculated for each individual survey respondent based on their best and worst selections using a root likelihood model (RLH).
• Frequency	Percentage calculated from a count divided by the total.
• Hierarchical Bayesian (HB) estimation	A special analysis technique applied to a best-worst scaling survey that uses individuals' responses to model predicted scores using a multinomial logit regression.
• Iterations	Engaging in the same process over and over again; HB analysis uses iterations to determine fit statistics.
• Preference score	The weighted proportional ranking value for each item in a best-worst scaling study.
• Prohibitions	A list of items that should not be shown together on a survey question when conducting best-worst scaling.
• Ranking / Rank	An order of items from highest to lowest. The rank is the number associated with the placement in that order.
• Reach	A score assigned in a TURF analysis that explains the percent of participants who are likely to support a set of items based on the survey results.
• Rescaled score / Normalized score	A score that has been divided by another value. If the result forces the minimum value to be the value one (1) then the rescaling is also called normalized.
• Sparse design	A best-worst scaling survey design where the number of times each item is shown in a survey is less than the proposed number of three times.
• Total Unduplicated Reach and Frequency (TURF)	An analysis that uses participants' responses to determine the likelihood that they would support a smaller set of items together.
• Utility	Calculated relative value where a higher utility translates to more liking than a lower utility.

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- <sup>i</sup> Chrzan, K., & Orme, B. K. (2019). *Applied MaxDiff: A Practitioner's Guide to Best-Worst Scaling*. Sawtooth Software.
- <sup>ii</sup> The Best-Worst Scaling study was designed, hosted, conducted using the software Lighthouse Studio v. 9.8.1 obtained through Sawtooth Software, accessed via <https://sawtoothsoftware.com/>.
- <sup>iii</sup> Gliner, J.A., Morgan, G.A., & Leech, N.L. (2009). *Research Methods in Applied Settings: An integrated approach to design and analysis*. 2<sup>nd</sup> ed. Routledge. New York, NY, pp. 115-130.
- <sup>iv</sup> Gliner, J.A., Morgan, G.A., & Leech, N.L. (2009). *Research Methods in Applied Settings: An integrated approach to design and analysis*. 2<sup>nd</sup> ed. Routledge. New York, NY, p. 155.
- <sup>v</sup> Sawtooth Software, Inc. (2009). The CBC/HB System for Hierarchical Bayes Estimation: Version 5.0 Technical Paper. Sequim, WA.
- <sup>vi</sup> Orme, B. (2019). *Consistency Cutoffs to Identify "Bad" Respondents in CBD, ACBC, and MaxDiff*. Sawtooth Software, Inc., Technical Paper. Sequim, WA.
- <sup>vii</sup> Louviere, J. J., Flynn, T. N., & Marley, A. A. (2015). *Best-Worst Scaling: Theory, Methods and Applications*. Cambridge University Press.
- <sup>viii</sup> Chrzan, K., & Orme, B. K. (2019). *Applied MaxDiff: A Practitioner's Guide to Best-Worst Scaling*. Sawtooth Software, pp. 2-3.
- <sup>ix</sup> Chrzan, K., & Orme, B. K. (2019). *Applied MaxDiff: A Practitioner's Guide to Best-Worst Scaling*. Sawtooth Software, pp. 108-113.
- <sup>x</sup> Covey, J., Adams, B. L., & Wohlforth, C. (2015). *Educator Quality and Quantity* (Rep.). Anchorage, AK: CEEAC.
- <sup>xi</sup> Saldaña, J. (2013). *The coding manual for qualitative researchers* (2nd ed.). Thousand Oaks, CA: SAGE.