



## Examining two teacher pay raise models in Head Start and publicly subsidized early care and education programs



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## BACKGROUND

The importance of knowledgeable, skilled, and consistent early care and education (ECE) teachers to young children's positive development and school readiness is becoming increasingly recognized by researchers, families, and policymakers<sup>1</sup>. Yet turnover among teachers in community-based ECE programs, including in Head Start and publicly subsidized ECE centers, has been a pervasive issue in the field. Nationally, approximately 30% of ECE teachers leave their jobs each year, a figure four times higher than observed among elementary school teachers<sup>2</sup>. A recent study in Head Start also indicated that approximately 45% of teachers left their jobs within the first five months of being hired<sup>3</sup>. A statewide ECE workforce study in Colorado presented a slightly more optimistic picture, finding Head Start lead teacher turnover rates hovering around 15% annually, although turnover rates among different assistant teaching roles ranged from 19% to 55%<sup>4</sup> a year creating a constant churn among classroom teaching teams.

When teachers leave, which often occurs mid-year in ECE classrooms, they also take with them the knowledge, skills, and social connections with the young children in their classrooms that are not easily or quickly replaced. Thus, teacher turnover can have negative consequences for young children, as it can prevent them from forming positive relationships with teachers and it can negatively impact the quality of classrooms, caregiving, and instruction<sup>5</sup>. Prior studies in Head Start have also shown that children in classrooms with higher rates of teacher turnover demonstrated lower language, cognitive, and social-emotional skills in comparison to children in classrooms who did not experience turnover among their teachers<sup>6</sup>. Having a consistent teacher has also been linked to better social-emotional skills among children attending Head Start<sup>7</sup>.

Teacher turnover can also present a number of challenges for other teachers in the center who remain. Because of the collaborative nature of teaching in early childhood classrooms, turnover among teachers in a center can increase the stress and workload of the teachers who stay, prompting those who stay to leave, creating a cycle of turnover<sup>8</sup>. This teacher churn is also costly to the economic viability of ECE programs.

Yet one of the most consistent findings in research examining turnover among ECE teachers is the strong relationship between the low wages teachers make and high rates of teachers leaving their jobs and often the professional altogether<sup>9</sup>. Scans of the early childhood workforce

1 Institute of Medicine/National Research Council (2015). *Transforming the early childhood birth to eight workforce*. Washington, DC: National Academies Press.

2 Whitebook, M., Phillips, D., & Howes, C. (2014). *Worthy work, STILL unlivable wages: The early childhood workforce 25 years after the National Child Care Staffing Study*. Center for the Study of Child Care Employment, University of California, Berkeley.

3 Wells, M. B. (2015). *Predicting preschool teacher retention and turnover in newly hired Head Start teachers across the first half of the school year*. *Early Childhood Research Quarterly*, 30, 152-159.

4 Schaack, D. & Le, V. (2017). *Colorado Early Childhood Workforce Survey, 2017*. Denver, CO: University of Colorado Denver.

5 Mims, S. U., Scott-Little, C., Lower, J. K., Cassidy, D. J., & Hestenes, L. L. (2008). *Education level and stability as it relates to early childhood classroom quality: A survey of early childhood program directors and teachers*. *Journal of Research in Childhood Education*, 23(2), 227-237.

6 Markowitz, A. & Bassok, D. (2018). *Teacher turnover and child development in Head Start*. Paper presented at the annual meeting of the Association for Public Policy Analysis and Management, Washington, DC.

7 McCoy, D. C., Morris, P. A., Connors, M. C., Gomez, C. J., & Yoshikawa, H. (2016). Differential Effectiveness of Head Start in Urban and Rural Communities. *Journal of applied developmental psychology*, 43, 29-42.

8 Whitebook, M., & Sakai, L. (2003). *Turnover begets turnover: An examination of job and occupational instability among child care center staff*. *Early Childhood Research Quarterly*, 18, 273-293.

9 Schaack & Le (2017).

have revealed that the vast majority of teachers in community-based programs are paid in-line with unskilled workers and that their compensation has not kept pace with the demands of the job. The majority of early childhood teachers in community-based settings and in Head Start make such low wages that they qualify for public assistance in nearly every state<sup>10</sup>.

### Wage Increase Models

Given the importance of a stable, knowledgeable, and skilled teaching workforce to a program's abilities to provide quality early learning experiences to children and the role that low wages play in losing teachers,<sup>11</sup> Mile High Early Learning (MHEL) and Rocky Mountain SER (RMSE) invested in wage increases for their teaching staff. Each organization implemented a different wage enhancement model designed to increase teacher retention that are described below.

MHEL is one of Colorado's oldest providers of subsidized ECE and Head Start services. Annually, MHEL serves approximately 625 children ages birth to age five in one of seven community-based centers throughout Denver. The organization currently employs approximately 46 lead teachers and 29 assistant teachers, staff aides, and center teachers (e.g., floaters) in 25 classrooms. In May of 2018, MHEL instituted a new salary scale in which higher wages were linked to higher education levels for different teaching roles. This model was implemented to incentivize and reward teacher educational attainment, which has been linked in prior research to higher quality care and instruction and to steeper trajectories in children's kindergarten readiness<sup>12</sup>. This model was also designed to provide a transparent career ladder to support career advancement and subsequently teacher retention in the field. Table 1 displays MHEL's new salary scale.

**Table 1. MHEL Salary Scale**

POSITION	EDUCATION REQUIREMENTS	WAGE PRIOR TO THE ADJUSTMENT	WAGE AFTER THE ADJUSTMENT
Staff Aide	High School/GED OR	\$12.00	\$12.50
	Unrelated Associates (AA) or Bachelors (BA)	Not applicable	\$13.00
Center Teachers	Early Childhood Teachers (ECT), OR 3 ECE classes, OR Colorado Early Childhood Credential (Credential) Level III	\$12.25	\$13.00
	Child Development Associate (CDA) OR 5 ECE classes or more	Not applicable	\$13.50
	ECE classes, OR AA or BA in unrelated field		
Teacher Assistants	CDA, Credential Level III, Center Director	\$12.50	\$14.00
	Certification, 5 or more ECE classes	\$12.75	\$14.50
	AA or BA unrelated field AND ECT qualified	Not applicable	\$15.00

10 Whitebook et al. (2014).

11 Setodji, C.M., Le, V., & Schaack, D. (2012). *Accounting for movement between child care classrooms: Does it change teacher effects interpretations?* *Journal of Applied Developmental Psychology*, 33(1), 1-12.

12 Ibid.

Lead Teachers	ECT qualification OR Credential Level III	\$12.50	\$16.00
	CDA or equivalent ECE classes	\$13.00	\$16.00
	Center Director Certificate	\$13.50	\$16.50
	AA unrelated with 5 or more ECE classes	Not applicable	\$16.50
	AA in ECE	\$15.00	\$17.50
	BA unrelated with less than 5 ECE classes	\$15.00	\$17.50
	BA unrelated with 5 to 9 ECE classes or ECE minor	\$16.00	\$18.50
	BA unrelated with major equivalent	\$16.50	\$20.00
	BA in ECE	\$16.75	\$20.00
	MA in ECE or unrelated field with equivalent of a ECE minor	\$17.50	\$21.00

RMSEER is one of Colorado's largest statewide social service organizations that provides ECE services, workforce development, and connects under resourced families to community services. As a Head Start grantee, RMSEER provides Head Start services in Denver, Pueblo, the San Luis Valley, and along the Western Slope, including in Mesa County. Each year, RMSEER serves approximately 1355 children three to five years of age in 13 centers, and employs approximately 45 lead teachers, and 42 assistant teachers and aides. In August, at the start of the 2019-20 academic year, RMSEER implemented a pay increase for all teachers to promote equal pay. In contrast to MHEL, RMSEER elected to institute a standard, across the board, pay raise based on teaching role. In their new salary model, all lead teachers now make \$20.00 an hour and all assistant teachers and aides make \$17.69 an hour regardless of their level of educational attainment.

### Study Purpose

The goal of this study is to understand the impact of these wage increase models on the retention of teachers 7.5 to 12-months after teachers received their pay raise and to compare the models regarding their impact on retention. Consequently, this study sought to examine the following research questions:

1. *To what extent did teachers experience boosts to their pay? Do pay raises significantly vary by organization?*
2. *Did wage increases reduce teacher turnover? Did the effects of the pay raise on turnover vary by organization?*
3. *What are the relationships between pay raise amount and center level turnover rates and individual teacher turnover?*

## STUDY METHODS

### Changes in Study Design

The current study is part of a larger evaluation of the *Mile High Early Learning Teacher Well-Being and Retention Initiatives*. Two important changes have occurred to the design of the initial study that influence the current report. In an earlier study design, we were interested in understanding the effects of a pay raise and the implementation of a new salary scale on teacher well-being, classroom quality, and teacher turnover at MHEL. Teachers at six urban RMSER Head Start centers were selected to serve as a control group because the organization paid teachers similarly to MHEL prior to MHEL's pay increase and the organization did not have plans to substantially raise teacher wages, other than annual cost of living adjustments. However, at the beginning of the 2019-20 academic year, RMSER decided to initiate a teacher pay raise across the organization and therefore RMSER teachers and their centers were no longer able to serve as a control group in which they would be compared to MHEL teacher outcomes as a function of a pay raise. Consequently, we modified the study design to include RMSER with MHEL in the teacher wage increase treatment condition, and we subsequently sought to examine two different wage increase models with each organizations' teacher employment outcomes in the year prior to their organization's salary increase serving as the comparative condition.

In addition, the global pandemic interrupted the study and temporarily, and in some cases permanently, shut down classrooms and therefore we were unable to collect post wage increase classroom quality data. We also concluded that the emotional and economic tolls associated with the pandemic would be confounding factors that would impact our abilities to understand the influence of a wage increase on teacher emotional and financial well-being indices. Therefore, we concentrate in this report exclusively on teacher turnover and retention as outcomes of the pay raises<sup>13</sup>. The advent of the pandemic also meant that we could only examine the influence of 7.5 months of RMSER's wage increase on teacher retention because classrooms closed mid-March 2020, two months before the end of the academic year and four months shy of a full calendar year. While important information about the potential effects of teacher pay increases on employment outcomes can be gleaned from this small, pilot study, these study changes and limitations preclude any definitive conclusions and results should be interpreted with caution.

### Sample

To address the first and third research questions, we drew from a sample of teachers working in seven MHEL centers on April 30<sup>th</sup>, 2018 and who were still employed the next day, May 1<sup>st</sup>, 2018, when the pay raise took effect and who completed a work climate survey as part of another aspect of the larger study. We also drew from a sample of teachers at RMSER who worked in six urban Head Start centers who were employed the last day of the academic year in May 2019 and continued employment on the first day of the academic year in August 2019 when the new pay raise took effect and who completed a work climate survey<sup>14</sup>. This resulted

13 Prior reports emanating from the larger study have focused on: 1) changes in MHEL teacher's financial and emotional well-being one-year post wage increase and 2) changes in emotional well-being and financial well-being among MHEL and RMSER teachers as a function of the pandemic.

14 It is important to note that RMSER work on an academic year and that most MHEL teachers work on a 12-month calendar year.

in a high study participation rate (>90%) among eligible teachers employed at the 13 centers in the study. The final sample was comprised of 61 lead teachers; 44 from MHEL and 17 from RMSER and comprised of 47 assistant teachers and 6 staff aides; 22 from MHEL and 31 from RMSER. The sample included more lead teachers from MHEL and more assistant teachers from RMSER. Because of the small sample size of staff aides, we removed them from analyses unless otherwise noted<sup>15</sup>.

Our unit of analysis for the second research question were seven MHEL centers and six RMSER centers. Additionally, within each of the centers, we included in our sample all teachers who were employed at any time during the year prior to the pay raise in each center and who were employed at any time one-year post pay raise at MHEL and 7.5 years post pay raise at RMSER. Again, we stopped two months shy of the end of the school year at RMSER and slightly over four months shy of a calendar year due to the global pandemic.

## Instruments

To understand the magnitude of pay raises and teacher level employment outcomes, we collected administrative data on teachers from each organization's human resources department. We received administrative data, including center assignment, position, hire date, exit date, initial hourly wage and adjusted hourly wage for each teacher who completed a teacher demographic and organizational climate survey in April 2018 for teachers at MHEL and in April 2019 for teachers at RMSER. These dates represent the time period immediately before the wage increase at each organization. We then calculated a percent of the initial base wage the pay raise represented for each teacher as a way to standardized raises across teaching positions.

To collect teacher turnover data, each spring for two years, research staff met with human resource staff at MHEL and at RMSER and consulted monthly human resource records for each classroom (n= 61) in the 13 centers from April 2017 (one year prior to the wage increase) through May 2019 for MHEL and from August 2018 to through March 2020 for RMSER. Each month, positions were tallied and categorized based on whether a teacher in a particular position: (1) voluntarily left the organization, (2) was terminated from employment, (3) stayed at the current center, but changed classrooms, or (4) stayed at the organization and changed centers. We then calculated a position turnover rate per center by dividing the total number of lead teacher and assistant teachers in a center by the number of "voluntarily left" turnover events for each position within a center. We then linked teacher position and wage data to center turnover data.

## Analytic Methods

To address our research questions, we used t-tests to understand whether there were significant differences in salary increases by organization, changes in turnover rates by position and organization, and whether differences in employment outcomes were observed based on salary increase amount. In addition, Pearson's Product-Moment correlations were calculated to understand relationships between average pay raises by position at a center and center level teacher turnover rate.

<sup>15</sup> We only report results by position and not by classroom age group served because RMSER only serves preschool aged children, unlike MHEL which additionally serves infants and toddlers.

## RESULTS

### *To what extent did teachers experience boosts to their pay? Do pay raises significantly vary by organization?*

Table 2 displays descriptive information about the average pay raise teachers experienced in each organization, by teaching position. The table shows that lead teacher wages in each organization were very similar prior to the wage increase, although RMSER's initial salaries were more compressed than at MHEL, which had more variability among lead teachers in their salaries. The average teacher at MHEL received a \$1.96 pay raise, equivalent to an approximate annual raise of \$4,077 over a 12-month period or an approximate 9.8% pay increase. RMSER's lead teachers received an average pay raise of \$3.97 an hour, which over a 9-month academic year averaged an annual increase of approximately \$6,193, which was a nearly 20% pay increase. RMSER's lead teacher pay increase was significantly higher than the pay raise received by the average MHEL lead teacher ( $t = -7.70, p < 0.0001$ ).

**Table 2. Pay Raises by Organization**

	PRE-PAY RAISE					POST-PAY RAISE				
	MEAN WAGE	MEDIAN WAGE	SD	MIN.	MAX.	MEAN WAGE	MEDIAN WAGE	SD	MIN.	MAX.
MHEL Lead Teacher	\$15.95	\$15.84	\$2.00	\$12.75	\$23.45	\$17.91	\$17.76	\$1.78	\$14.00	\$23.92
RMSER Lead Teacher	\$16.03	\$16.00	\$0.87	\$14.64	\$17.28	\$20.00	\$20.00	\$0.00	\$20.00	\$20.00
MHEL Asst. Teacher	\$12.67	\$12.63	\$0.88	\$11.83	\$14.79	\$13.75	\$14.00	\$0.92	\$12.50	\$15.09
RMSER Asst. Teacher	\$12.56	\$12.63	\$1.15	\$11.35	\$15.00	\$17.69	\$18.00	\$1.03	\$16.00	\$20.00

Assistant teachers at MHEL and RMSER also had highly similar average hourly wages prior to the wage increases. For assistant teachers, MHEL's pre-increase salaries showed slightly less variability than RMSER's initial assistant teacher salaries. After the wage increase, MHEL's assistant teachers made, on average, \$1.08 more an hour, equating to approximately \$2,246 more annually, which represented an average pay increase of nearly 8%. After the wage increase, the average assistant teacher at RMSER made approximately \$5.18 more an hour; equating to approximately \$8,081 more annually, pro-rated for a 9-month work year. This represented an approximate 29% pay increase. These differences were also significant, with RMSER's assistant teachers receiving a higher wage increase than assistant teachers at MHEL ( $t = -16.78, p < 0.0001$ ).

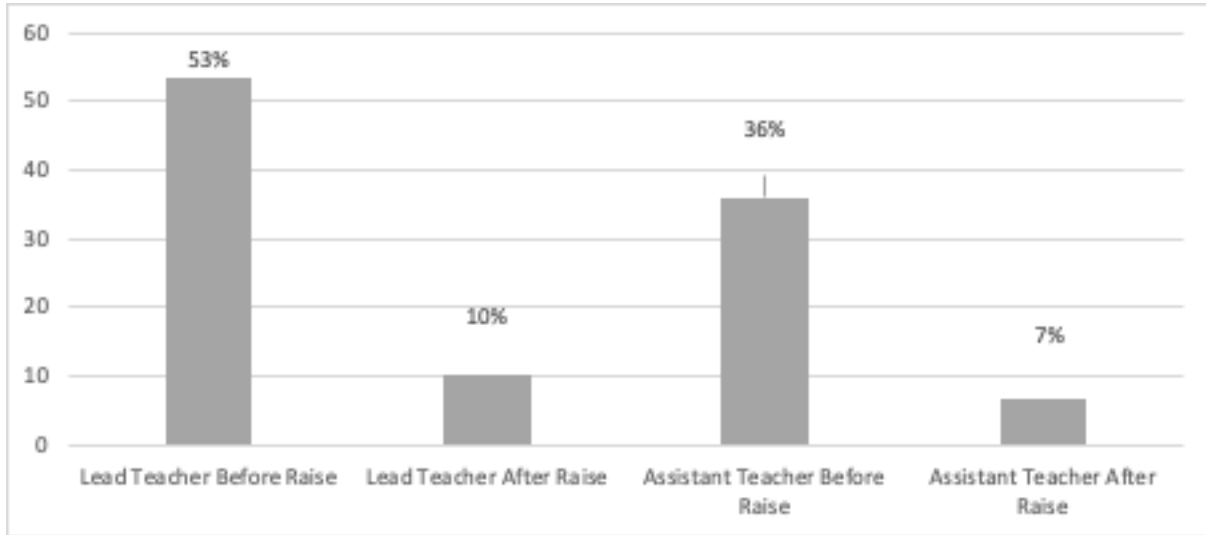
### *Did teacher pay raises result in a significant reduction in teacher turnover?*

To address this question, we calculated a turnover rate, by position, for each of the 13 centers in the study across the two organizations. Figure 1 shows turnover over time among lead teachers across organizations<sup>16</sup>. Prior to the pay raise, the organizations experienced a 53% turnover rate among lead teachers across centers. Turnover among lead teachers ranged within centers from no lead teacher turnover to a 150% annual turnover rate. Post wage increase, centers, on average, experienced a 10% turnover rate among lead teachers, with turnover in this position ranging from none to 42% post pay raise. The reduction in lead teacher turnover was significant ( $t = -2.73, p=0.0184$ ).

<sup>16</sup> It is important to reiterate that RMSER's turnover data was calculated 7.5 months post salary increase and additional turnover might have been observed had it been calculated at the 12-month post salary increase mark. Thus care should be taken with interpretation of turnover results.

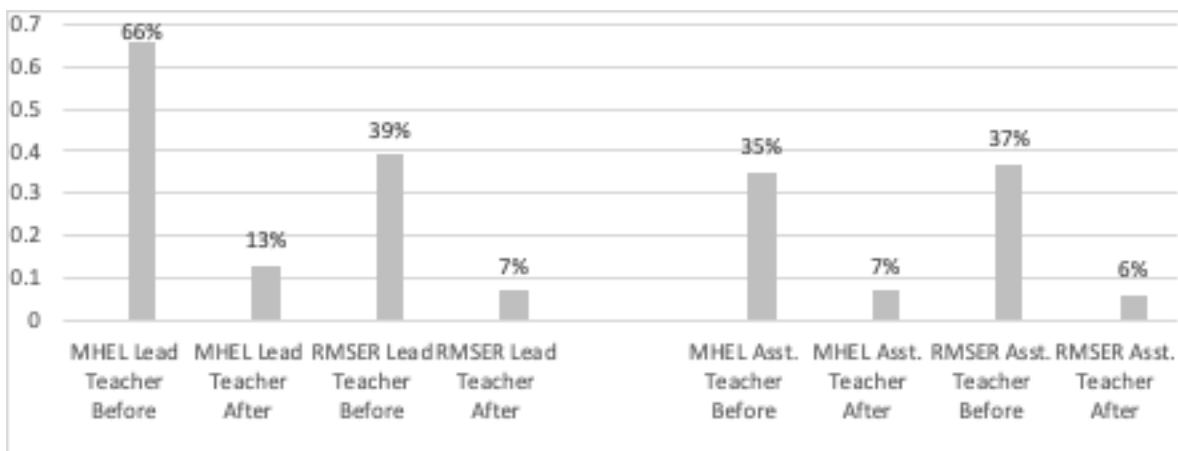
Figure 1 also shows assistant teacher turnover over time across the organizations. During the year before the wage increase, the average center experienced 36% turnover among assistant teachers. Assistant teacher turnover rates ranged in centers from no assistant teacher turnover to 100% of assistant teachers turning over in the year prior to the pay raise. Post wage increase, the average assistant teacher turnover rate within centers fell to 7% and ranged across centers from no assistant teacher turnover to a 33% turnover rate. This decrease in assistant teacher turnover was also significant ( $t = -2.65, p = 0.0211$ ).

**Figure 1. Turnover Rates Pre and Post Salary Increase**



In addition, we examined whether there were differences in turnover rates in each position by organization (see Figure 2). Despite the seemingly large changes in turnover seen in Figure 2, particularly for lead teachers at MHEL, changes in turnover were proportionally similar for both lead and assistant teachers between organizations. These similar patterns in turnover reduction between organizations suggests that differences in the wage models may not be driving reductions in turnover and that simply getting a substantive pay raise appears to be the driving factor.

**Figure 2. Turnover by Organization**





### ***What are the relationships between pay raise amount teachers and teacher turnover?***

Our final set of analyses focused on whether the size of teachers' pay raises was related to turnover. We addressed this question in several ways. First, we sought to understand, at a center level, whether average teacher pay increase amounts were related to turnover rates 7.5 to 12-months post salary increase. We also examined, at a center level, whether there were relationships between average teacher pay increase amounts and changes in teacher turnover rates between the year prior to the pay raise and to the year after the pay raise. Table 3 provides descriptive statistics on the sample and Table 4 provides the correlation coefficients describing the types of relationships observed between average wage increase, post salary increase turnover rates, and reductions in turnover. Negative figures in Table 4 represent larger reductions in turnover.

**Table 3. Sample Characteristics**

	N	MEAN	SD	MIN	MAX
Post-Lead Teacher Turnover	13	10.08	13.52	0.00	41.67
Post-Asst. Turnover	13	6.52	11.13	0.00	33.30
Lead Teacher Wage Increase	61	\$2.46	\$1.33	\$0.32	\$5.36
Asst. Teacher Wage Increase	47	\$3.79	\$2.11	\$0.29	\$6.65

Table 4 shows that there is a moderately strong relationship between higher lead teacher and assistant teacher wage increases and lower turnover rates. There is also a moderately strong relationship higher assistant teacher wages and a greater reduction in assistant teacher turnover. However, these relationships were not statistically significant. Again, this may be an artifact of the small sample size and should not be taken to mean that the amount of the raise was inconsequential to teacher retention.

**Table 4. Correlations between wage increases and turnover**

	AVERAGE WAGE INCREASE	
	R	P-VALUE
Post Lead Teacher Turnover	-0.313	0.64
Post- Asst. Turnover Rate	-0.270	0.40
Change Lead Teacher Turnover	0.149	0.32
Change Asst. Turnover	-0.267	0.39

We also took a more nuanced look at within organization turnover and the relationships between the pay raise a teacher received and whether they stayed in or left their jobs. We calculated the amount of the pay raise a teacher received based on the percentage increase from the base salary prior to the wage increase. The 18 teachers who left RMSER post pay raise received an average pay increase that was 25% (0.08) higher than their original salary. The 45 teachers who remained at RMSER received an average pay increase that was 27% (0.71) higher than their original base pay. These differences were not significant.

For the 22 teachers at MHEL who left, they received an average pay increase that was 11.52% (6.8%) higher than their initial base pay. Of the 52 teachers who remained employed at MHEL,

they received an average pay increase that was 8.23% (7.62%) higher than their initial base pay. Differences in pay increase between teachers who stayed at MHEL and teachers who left were also not significant.

## DISCUSSION

The results of this study suggest that wage increases can play an important role in helping to stabilize and retain teachers, at least in the short term. Within the context of this study, we did find that RMSER's wage increase initiative put more money into the pockets of more teachers and that their model was designed to create consistency in pay among teachers across the organization. On the other hand, MHEL's model rewarded teachers for higher educational attainment and their top pay level was similar to RMSER's lead teacher rate of pay. This approach was designed to simultaneously improve quality programming for children and teacher retention and may serve to help professionalize the field. It is also possible that greater knowledge of child development and pedagogy may serve to reduce teacher stress by nature of having a deeper skill set for the job, that may, in turn, also serve as an additional mechanism to promote teacher retention.

Within the context of this small pilot study, we did not find evidence that one wage enhancement model was more effective at reducing teacher turnover than another. Both models yielded similar rates of reduction in turnover among both lead teachers and assistant teachers. It is possible that had other outcomes been examined, such as classroom quality, that MHEL's model might offer advantages, or if we had examined reductions in financial stress or public subsidy receipt, RMSER's model may offer better advantages. Further study with larger samples will be needed to understand a broader scope of teacher outcomes from different salary models.

Importantly, this study only examined teacher turnover and retention outcomes one year post pay raise for MHEL and 7.5 months post pay raise for RMSER. Results from prior studies of MHEL's wage enhancement model suggest that as the novelty of a pay raise wears off, set against the backdrop of not yet high enough wages in a high cost of living city, teacher turnover may increase overtime. When examining teacher employment outcomes two-years post wage increase, MHEL experienced significant uptick in turnover across teaching job roles. However, turnover rates two years post wage increase were still 33% to 44% lower than turnover rates prior to the wage increase<sup>17</sup>. These results suggest that organizations do see longer-term benefits in reduced teacher turnover through efforts to increase teacher compensation.

As Colorado begins to consider how to expand children's access to publicly funded preschool programs, understanding the types of teacher wage structures that help stabilize the workforce is critical to developing preschool implementation guidelines that better ensure the success and stability of publicly supported ECE. The results of this study can provide some guidance as to wage models that the state might consider that move toward professionalizing and elevating the field.

<sup>17</sup> Schaack, D., Le, V., Donovan, C., Adejumo, T., & Ortega, M. (2020). *Teacher retention and turnover post salary increase at Mile High Early Learning: Factors shaping teachers' job decisions*. Denver, Colorado: University of Colorado Denver.