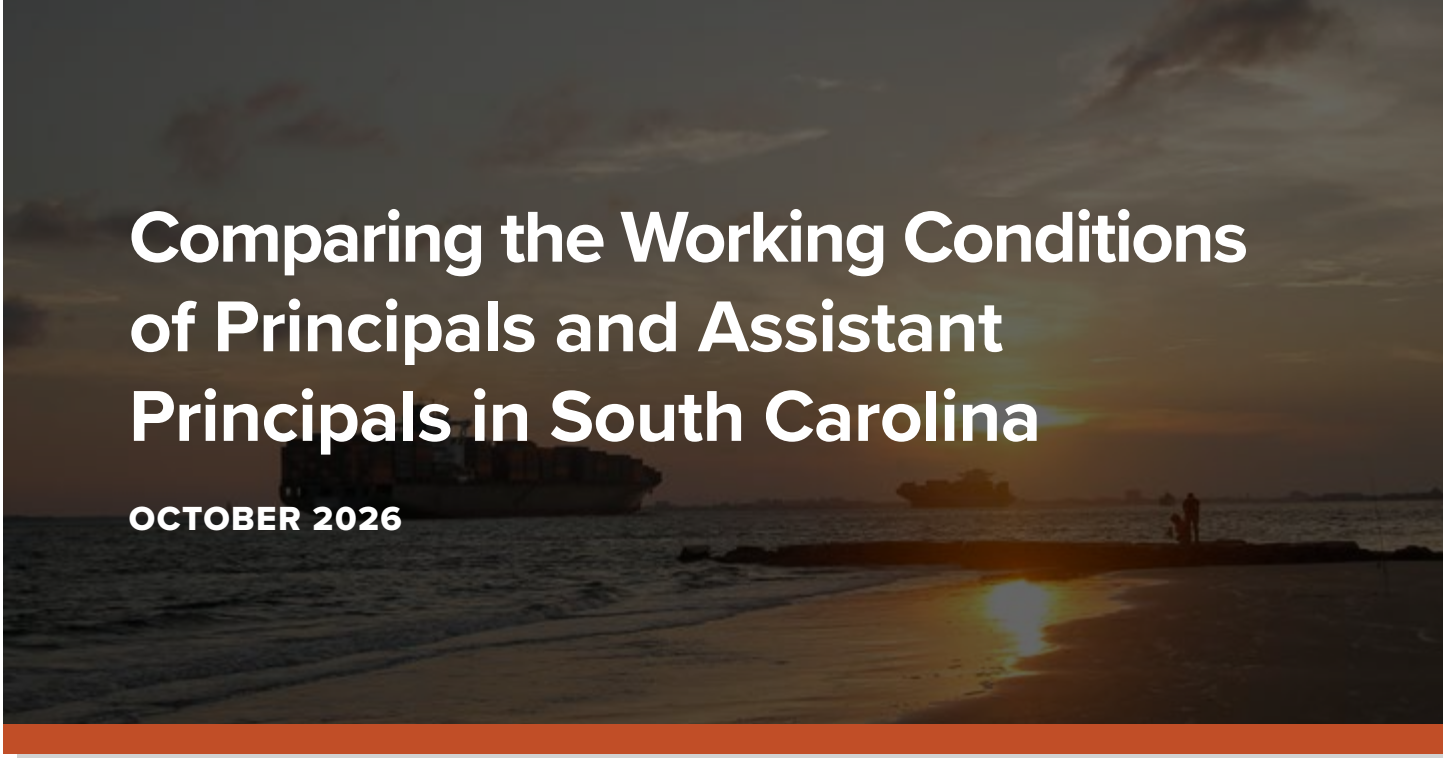

Comparing the Working Conditions of Principals and Assistant Principals in South Carolina

OCTOBER 2026

+ TECHNICAL APPENDIX

Data and Sample

Analyses for this report use data from the 2026 pilot administration of the SC Administrator Working Conditions Survey (SCAWCS; Starrett et al., 2026). The analytic sample includes 697 principals and 887 assistant principals, for a total of 1,584 school administrators. Respondents in other administrative positions were excluded to allow a clean comparison between the two central school leadership roles. Exclusions included 26 career and technical education (CTE) center directors, 9 CTE center assistant directors, 25 administrative assistants, and 35 respondents with other or missing positions. Administrators are nested within districts, with 57 districts in the principal group and 51 in the assistant principal group. Missing responses were handled with full-information maximum likelihood. This approach uses all available data from every respondent without dropping incomplete cases or imputing single values.

Measures and Estimation

The survey measures 13 working conditions organized as seven job resources and six job demands. The job resources are autonomy, community support, district shared governance, district support, faculty/staff support, parent/family support, and professional development. Resource items use a 7-point agreement scale, so higher scores reflect stronger agreement that the resource is present. The job demands are accountability, cognitive demands, emotional and relational demands, organizational demands, student discipline management, and workload. Demand items use a 7-point frequency scale, so higher scores reflect more frequent experiences of the demand. Job satisfaction is measured with a nine-item scale, and retention intention is measured with a single item reflecting intent to remain in school leadership within the current district. Both use the 7-point agreement scale.

All models were estimated in Mplus 8.10 using maximum likelihood estimation with robust standard errors (MLR). Standard errors and test statistics were adjusted for the clustering of administrators within districts. Items were treated as continuous, which is well supported for scales with five or more response options (Rhemtulla et al., 2012). Two refinements were made during model evaluation. One autonomy item related to the school budget was removed because it functioned differently across roles and overlapped substantially with other constructs (e.g., district shared governance). One residual covariance between two similarly worded parent/family support items was also estimated. Both refinements were made before the analyses reported here.

Measurement Invariance Testing

Before comparing groups, we tested whether the survey measures the same constructs in the same way for principals and assistant principals. This property is called measurement invariance, and it was tested using multiple-group confirmatory factor analysis. Testing proceeded in three steps, with each step adding a stricter requirement. The first step tested the configural model, which requires only the same factor structure in both groups. The second step tested the metric model, which adds the requirement that factor loadings are equal, meaning items relate to their constructs with equal strength. The third step tested the scalar model, which adds the requirement that item intercepts are equal, meaning respondents with the same underlying level give the same expected item response. Scalar invariance is the condition that makes group mean comparisons meaningful.

Table A1 reports the measurement invariance results. Model fit was summarized with the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Changes in fit were judged against established benchmarks. A decrease in CFI of .01 or less, together with an increase in SRMR of .03 or less for loading constraints and .01 or less for intercept constraints, indicated invariance (Chen, 2007; Cheung & Rensvold, 2002). Scaled chi-square difference tests and the Bayesian information criterion (BIC) provided additional evidence. Metric invariance was fully supported.

Full scalar invariance showed a small decline in fit. The decline was traceable to three student discipline management items that functioned differently across roles. For two items, “needing to address inappropriate student behavior” and “investigating student behavior incidents on buses or on campus,” assistant principals reported these responsibilities more frequently than their overall standing on the construct would predict. For one item, “managing student tardiness or absenteeism,” principals reported the responsibility more frequently. This pattern most likely illustrates the typical division of labor between the two roles. Principals more often oversee attendance, which is a school-level responsibility tied to accountability reporting. Assistant principals more often carry the day-to-day response to student behavior and the investigation of incidents. This pattern is consistent with assistant principals' greater direct responsibility for student discipline rather than with a flaw in the instrument.

A partial scalar model freeing those three intercepts fit well and achieved the lowest BIC of all models tested. This model leaves 97 of 100 item intercepts equal across roles. All job satisfaction items were fully equivalent. Comparisons in this report are therefore based on the partial scalar model. The differences reported can be interpreted as actual differences in conditions rather than differences in how survey questions were read.

Table A1. *Measurement Invariance Model Fit Across Principals and Assistant Principals*

Model	χ^2 (*df*)	CFI	RMSEA	SRMR	Scaled $\Delta\chi^2$ (Δdf)	ΔCFI	BIC
Configural	19791.2 (9510)	.904	.037	.053	N/A	N/A	417212.6
Metric	20009.8 (9596)	.903	.037	.055	208.5 (86)***	-.001	416900.3
Scalar	20630.7 (9682)	.898	.038	.056	693.2 (86)***	-.005	416949.1
Partial scalar	20564.7 (9679)	.899	.038	.056	613.8 (83)***	-.004	416898.1

Note. n = 1,584 (697 principals, 887 assistant principals). Models were estimated with MLR and district-clustered standard errors. Scaled $\Delta\chi^2$ compares each model with the preceding, less restrictive model. The partial scalar model is compared with the metric model and frees three student discipline management intercepts in the assistant principal group. ***p < .001.

Comparisons of Latent Means Between Groups

With partial scalar invariance established, group differences were estimated as latent mean differences, which correct for measurement error. This means the comparisons reflect differences in the underlying working conditions themselves rather than differences inflated or hidden by imperfect survey items. The principal group serves as the reference and is fixed at zero. Table A2 reports the unstandardized differences with standard errors, *p*-values, and standardized difference values that can be interpreted like effect sizes. By common benchmarks, standardized values near 0.20 are small, values near 0.50 are medium, and values near 0.80 are large (Cohen, 1988). In education research, differences between groups are usually smaller than these benchmarks suggest. A difference of 0.20 in this context is meaningful, not trivial. The gaps on district support (0.41) and district shared governance (0.61) are large for research of this kind (Kraft, 2020). Job satisfaction was compared the same way. Intent to remain in school leadership within the current district is a single observed item and was compared as a model-estimated mean difference under full-information maximum likelihood.

Table A2. *Differences in Working Conditions, Job Satisfaction, and Intent to Remain (Assistant Principals Relative to Principals)*

Construct	Unstandardized difference (*SE*)	*p*	Standardized difference	Direction
JOB RESOURCES				
Autonomy	-0.27 (0.05)	< .001	-0.28	AP lower
Professional development	-0.26 (0.07)	< .001	-0.20	AP lower
District shared governance	-0.96 (0.11)	< .001	-0.61	AP lower
District support	-0.50 (0.06)	< .001	-0.41	AP lower
Faculty/staff support	-0.20 (0.05)	< .001	-0.25	AP lower
Parent/family support	-0.16 (0.05)	.001	-0.21	AP lower
Community support	-0.21 (0.08)	.007	-0.18	AP lower
JOB DEMANDS				
Accountability	-0.19 (0.07)	.011	-0.13	AP lower
Cognitive demands	0.01 (0.07)	.851		NS
Workload	-0.05 (0.10)	.604		NS
Student discipline management	0.35 (0.06)	< .001	+0.24	AP higher
Organizational demands	-0.08 (0.08)	.361		NS
Emotional and relational demands	-0.03 (0.06)	.568		NS
OUTCOMES				
Job satisfaction	-0.18 (0.05)	< .001	-0.20	AP lower
Intent to remain (single item)	-0.03 (0.08)	.712		NS

Note. Standardized differences equal the latent mean difference divided by the latent standard deviation of the construct among assistant principals, so they can be read as effect sizes. They are reported only for statistically significant differences. Student discipline management was compared using the seven items that measured it the same way for both roles. The other three items show role differences beyond the overall construct difference. AP = assistant principals; NS = not statistically significant.

Associations of Working Conditions With Outcomes

Guided by the job demands-resources framework, a multiple-group structural model regressed job satisfaction and intent to remain simultaneously on all 13 working conditions. The residual association between the two outcomes was estimated freely in each group. To determine whether the pattern of associations differed by role, all paths were first estimated separately for principals and assistant principals and compared with Wald tests. The test for the job satisfaction equation was not significant, $\chi^2(13) = 10.03$, $p = .69$. The test for the intent to remain equation was $\chi^2(13) = 22.52$, $p = .048$, which did not reach significance after correcting for testing two equations, with an adjusted alpha of .025. The largest single difference involved emotional and relational demands on intent to remain, and neither group's coefficient for that path was statistically significant.

A direct comparison of a model constraining all 26 paths equal across roles against the freely estimated model did not indicate a significant difference, scaled $\Delta\chi^2(26) = 30.45$, $p = .25$. The constrained model also fit better by information criteria. BIC was 420,908.7 for the constrained model and 421,061.7 for the freely estimated model, a difference of 153 points in favor of the constrained model. AIC also favored the constrained model (417,543.1 versus 417,556.6). The constrained model achieved this with 26 fewer estimated parameters while CFI was unchanged at .899, SRMR was unchanged at .056, and RMSEA improved slightly from .038 to .037. These results indicate that the associations between working conditions and outcomes did not differ meaningfully between principals and assistant principals. Table A3 therefore reports estimates from the model constraining these associations equal across roles.

Table A3. *Associations Between Working Conditions and Outcomes (Constrained Equal Across Roles)*

Predictor	Job satisfaction *b* (*SE*)	β (P/AP)	Intent to remain *b* (*SE*)	β (P/AP)
Autonomy	0.04 (0.06)	.04/.04	0.12 (0.12)	.07/.09
Professional development	0.06 (0.02)*	.10/.09	0.11 (0.05)*	.10/.11
District shared governance	-0.01 (0.03)	-.02/-.02	-0.03 (0.04)	-.03/-.04
District support	0.22 (0.05)***	.31/.31	0.41 (0.06)***	.32/.37
Faculty/staff support	0.24 (0.05)***	.22/.23	0.09 (0.09)	.04/.05
Parent/family support	0.12 (0.08)	.10/.10	0.09 (0.08)	.04/.05
Community support	-0.02 (0.03)	-.02/-.02	-0.04 (0.05)	-.03/-.03
Cognitive demands	0.01 (0.02)	.02/.02	0.01 (0.03)	.01/.01
Accountability	0.08 (0.02)***	.15/.14	0.08 (0.03)**	.09/.09
Workload	-0.14 (0.03)***	-.25/-.21	-0.08 (0.04)*	-.09/-.09
Student discipline management	0.02 (0.02)	.03/.03	0.00 (0.04)	.00/.00
Organizational demands	0.00 (0.03)	.01/.01	-0.07 (0.05)	-.07/-.08
Emotional and relational demands	-0.03 (0.04)	-.05/-.04	0.02 (0.07)	.01/.01

Note. Unstandardized coefficients (*b*) and standard errors (*SE*) are constrained equal across roles. Standardized coefficients (β) are shown separately for principals (P) and assistant principals (AP) because each is scaled by that group's standard deviations of the predictor and outcome. Differences between the two β values reflect differences in variability, not differences in the associations. Each coefficient reflects the association of that condition with the outcome, controlling for the other 12 conditions.
*p < .05. **p < .01. ***p < .001.

Interpretation Notes and Limitations

Several cautions apply. First, the data are cross-sectional. Coefficients describe associations, not causal effects. The findings identify where to look rather than prove that changing a condition will change an outcome. Second, the 13 conditions are correlated with one another. Each coefficient represents a condition's unique association after accounting for the other conditions. A small coefficient, such as that for district shared governance, does not mean the condition is unrelated to the outcomes; it means the condition adds little once the other conditions are taken into account. Third, intent to remain in school leadership within the current district was measured with a single item. Its reliability cannot be estimated, so its associations are not corrected for measurement error as the latent outcomes are, and its equivalence across roles cannot be tested in the same way as multi-item scales. Intent to remain also reflects stated intentions rather then observed retention. Fourth, all measures are self-reported on the same survey, so shared method variance may inflate associations between working conditions and outcomes.

Overall model fit met conventional standards on residual-based and parsimony-adjusted indices (RMSEA = .037–.038, SRMR = .053–.056). CFI ranged from .899 to .904, near the .90 benchmark, which is a common pattern for models with many indicators, here 13 constructs measured by 100 items (Kenny & McCoach, 2003). All solutions were verified as stable across repeated estimation from randomized starting values.

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