

THE ROLE OF TEAM COHESION AND WORK ENVIRONMENT IN ENHANCING ACADEMICS' JOB SATISFACTION AND PERCEIVED INSTITUTIONAL PERFORMANCE: EVIDENCE FROM PRIVATE UNIVERSITIES IN BANGLADESH

Md. Rofiqul Islam^{1*}, Dr. Sandeep Kaur²

¹Research Scholar, Faculty of Management and Commerce, Guru Kashi University, Talwandi Sabo, Bathinda, Punjab, India

²Associate Professor, Faculty of Management and Commerce, Guru Kashi University, Talwandi Sabo, Bathinda, Punjab, India

Email - rafhiqulislam@yahoo.com¹, sandeepkaur@gku.ac.in²

*Corresponding author: rafhiqulislam@yahoo.com

ABSTRACT

This work presents the associations of team cohesion and work environment with academics' job satisfaction and perceived institutional performance in private universities of Bangladesh. Social Exchange Theory and the Job Demands–Resources model frame job satisfaction as an attitudinal pathway through which interpersonal and organizational resources relate to institutional outcomes. Survey data from 365 academics across 30 universities were evaluated on the basis partial least squares structural equation modelling. Perceived institutional performance was specified from student retention, the quality teaching enhancement, and growth and ranking of an institution; organizational citizenship behaviour (OCB) was modelled separately. University-cluster-adjusted estimates supported H1–H3: team cohesion and work environment shows positive association along with the job satisfaction, while job satisfaction have positively association with the perceived institutional performance. The direct associations of team cohesion and work environment with perceived institutional performance, which were retained to evaluate the mediation model, were also positive. The indirect effects of team cohesion and work environment through job satisfaction were 0.100 and 0.083, respectively, supporting H4 and H5. The model explained 35.1% of job-satisfaction variance and 42.3% of perceived-performance variance. In the separate OCB model, team cohesion, work environment, and job satisfaction had coefficients of 0.241, 0.149, and 0.463, respectively ($R^2 = 0.522$). The cross-sectional, self-reported design supports associational rather than causal interpretation.

KEYWORDS - academic job satisfaction, organizational citizenship behaviour, perceived institutional performance, private universities, team cohesion, work environment.

1. INTRODUCTION

Universities depend on academics to teach, conduct research, support students and contribute to institutional development. Their effectiveness is influenced by individual expertise and also along with the social and organizational conditions under which academic work occurs. Team cohesion can improve coordination and mutual assistance, whereas a supportive work environment can provide the resources, autonomy and procedural fairness needed to perform demanding roles. These conditions may shape academic job satisfaction and, through satisfaction and discretionary effort, perceived institutional outcomes.

The three focal concepts should not be conflated. Team cohesion concerns the quality of relationships and unity within academic groups; work environment concerns the wider institutional conditions in which those groups operate; and job satisfaction is the academic's evaluation of the resulting work experience. Separating them allows the analysis to distinguish interpersonal and organizational antecedents from the attitude they may produce. It also permits a direct test of whether satisfaction carries part of the relationship between workplace resources and perceived performance rather than assuming that favourable conditions automatically become institutional outcomes.

Academic job satisfaction reflects academics' evaluation of their work and has been associated with job stress and changing employment conditions across higher-education systems [1]. In this study, satisfaction is treated as an attitude distinct from the workplace resources that may generate it.

Private universities in Bangladesh provide a useful context because they compete for students and staff while operating with differing resources, governance practices and institutional maturity. Bangladesh-specific studies have linked academics' satisfaction with compensation, security, supervision, training, working conditions and collegial relationships [2]–[4]. However, team cohesion and work environment are often examined separately, academic job satisfaction is sometimes merged with its antecedents, and institutional outcomes are frequently discussed without distinguishing objective performance from academics' perceptions.

This study addresses those gaps by testing an integrated model in which team cohesion and work environment are correlated with academic job satisfaction and the perceived institutional performance, whereas satisfaction mediates the two resource–performance relationships. Perceived institutional performance is represented by student retention, quality teaching enhancement, and growth and ranking of the institution. OCB is modelled separately as a secondary behavioural outcome because it concerns academics' voluntary behaviour rather than an institution-level performance dimension. The study therefore

asks whether social and organizational resources are linked to academics' attitudes, perceived institutional outcomes, and voluntary contribution.

The performance label is deliberately qualified as perceived. Retention and ranking ordinarily require institutional records, while teaching enhancement can be assessed through several stakeholder groups; the present survey instead captures academics' evaluations. OCB is retained as a separate reflective construct and secondary outcome because it is normally located at the individual or team level. Because the OCB items ask respondents what "academics" generally do, the construct is described as perceived collective citizenship behaviour rather than respondents' own OCB. This measurement choice and the cross-sectional design require cautious interpretation: the estimates identify theoretically consistent associations, not objective changes or causal effects.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

A. Theoretical Foundation

Social Exchange Theory explains workplace relationships through reciprocity: when academics receive collegial support, fair treatment and institutional resources, they may respond with greater satisfaction, commitment and voluntary contribution [5]. The Job Demands–Resources model similarly views team cohesion as a social resource and facilities, autonomy, support and fair procedures as organizational resources that help academics manage teaching, research, service and administrative demands [6]. Together, these theories suggest that supportive workplace conditions may influence institutional outcomes directly and indirectly through job satisfaction.

B. Team Cohesion and Academic Job Satisfaction

Team cohesion reflects trust, communication, mutual support, unity and commitment to shared goals. In academic departments, cohesive colleagues coordinate teaching, research, assessment and committee responsibilities, thereby reducing isolation and workload uncertainty. Studies of Bangladeshi private universities identify collegial relationships and cohesion as important satisfaction factors [2], [4], while broader research links team cohesion with performance [7] and highlights the benefits of substantive teacher collaboration [8]. Cohesion is therefore expected to make interdependent academic work more manageable and meaningful without undermining individual autonomy.

H1: Team cohesion is positively correlated with academics' job satisfaction.

C. Work Environment and Academic Job Satisfaction

The work environment includes facilities, technological resources, workload allocation, communication, fairness, safety, autonomy, administrative support and development opportunities. Adequate resources and transparent policies enable academics to fulfil teaching and research responsibilities while reducing ambiguity and perceived injustice. Evidence from Bangladesh associates favourable working conditions and quality of work life with faculty satisfaction [2], [3], whereas excessive workload and work–family conflict may reduce it [9]. Studies in other higher-education settings similarly connect work-life quality, workplace relationships and institutional support with satisfaction and performance [10], [11]. These elements operate jointly because physical resources have limited value when workload, policy inconsistency or inadequate support prevents their effective use.

H2: A favourable work environment is positively correlated with academics' job satisfaction.

D. Job Satisfaction and Perceived Institutional Performance

Job satisfaction is distinct from the conditions that produce it, but it may relate to perceived institutional outcomes through sustained effort and discretionary behaviour. Satisfied academics may provide more consistent teaching and student support, share knowledge and participate constructively in institutional activities. Meta-analytic evidence links job satisfaction with job performance [12], while higher-education research associates workplace relationships and satisfaction with employee performance [13]. Institutional outcomes also depend on governance, finance, regulation and student characteristics; therefore, the present model concerns academics' perceptions rather than objective institutional performance.

H3: Academics' job satisfaction is positively correlated with perceived institutional performance.

E. Academic Job Satisfaction as an Indirect Pathway

Team cohesion and a favourable work environment may relate directly to perceived institutional performance by improving collaboration and access to resources. They may also operate indirectly by strengthening job satisfaction, which can encourage sustained effort, student support and voluntary contribution. Job satisfaction is therefore examined as a complementary pathway rather than as a complete substitute for the direct contribution of workplace resources.

H4: Team cohesion is positively associated with perceived institutional performance indirectly through academics' job satisfaction.

H5: A favourable work environment is positively associated with perceived institutional performance indirectly through academics' job satisfaction.

3. RESEARCH METHODOLOGY

A. Research Design and Sample

A quantitative, cross-sectional explanatory designed model was used to estimate associations among team cohesion, work environment, academic job satisfaction, perceived institutional performance, and OCB. The institutional sampling frame was constructed from the University Grants Commission (UGC) list of private universities [14]. Universities were eligible if they were UGC-listed private universities established from 1991 through 2020. Eligible universities were classified as first-generation institutions established during 1991–2000, second-generation institutions established during 2001–2010, and third-generation institutions established during 2011–2020. The resulting frame contained 14 first-generation, 37 second-generation, and 49 third-generation eligible universities. From these strata, 4, 11, and 15 universities, respectively, were selected using computer-generated random numbers. The available sampling records did not identify the randomization software or seed.

Faculty rosters supplied by the 30 selected universities identified 4,093 eligible full-time academics. Within university I, the systematic-sampling interval was calculated as $k_i = N_i/n_i$. A random starting value between 1 and k_i was generated, after which every k_i -th eligible academic was selected. Eligibility required full-time academic employment, at least one year of service, and involvement in teaching or research. Visiting or adjunct faculty and administrative employees without academic duties were excluded. The figure of 4,093 therefore represents the accessible population within the selected universities, not all academics employed by private universities in Bangladesh.

Table 1. Respondent Allocation Across University Generations

Generation	Universities	Allocation	Respondents
First generation	4	U1–U4: 13 each	92
Second generation	11	U5: 13; U6–U15: 12 each	154
Third generation	15	U16–U30: 12 each	119
Total	30		365

Yamane's finite-population formula, $n = N/(1 + Ne^2)$, was used as an initial sample-planning benchmark [15]. Using an accessible population of 4,093 eligible academics and $e = 0.05$, the calculation produced a minimum of approximately 365 respondents. An independent a priori G*Power analysis for a model with three predictors, ($F^2 = 0.15$), ($\alpha = 0.05$), and priori statistical power of 0.80 indicated the requirement of a minimum of 77 respondents. The actual analytic sample comprised 365 academics.

Data were collected using secure online questionnaires and printed forms distributed through university coordinators. 365 questionnaires contained complete data for all model indicators; therefore, no item-level imputation was performed.

The final analytic sample comprised 92 academics from four first-generation universities, 154 academics from eleven second-generation universities, and 119 academics from fifteen third-generation universities. These generation-wise counts represent the realized respondent distribution within the 30 selected universities. The approximately equal institutional allocation prioritized cross-university representation over probability proportional to university size. The sample is therefore not a self-weighting estimate of academics employed across all private universities in Bangladesh. With 365 academics nested within 30 universities, the mean cluster size was approximately 12.17. University-level ICCs were estimated from intercept-only random-effects models in R 4.5.1 using university as the grouping factor: $ICC_{JS} = 0.041$, $ICC_{PIP} = 0.063$, and $ICC_{OCB} = 0.052$. Applying $DEFF = 1 + (\bar{m} - 1) ICC$ produced design effects of 1.458, 1.704, and 1.581, respectively. University-level cluster-bootstrap inference was conducted using 5,000 replications in R 4.5.1 with seed 2025. In each replication, 30 university clusters were sampled with replacement, and all respondents belonging to each selected university were retained. When a university was selected more than once, each occurrence was treated as a separate replicate cluster. The complete disjoint two-stage PLS-SEM procedure was rerun independently within every cluster-bootstrap replication. The reflective first-order measurement models were re-estimated, the Stage-1 construct scores were recalculated, the Stage-2 reflective-formative perceived institutional performance construct was re-estimated, and the structural paths and indirect effects were recalculated. Thus, measurement-model parameters, higher-order construct weights, latent-variable scores and structural paths were allowed to vary across cluster-bootstrap samples. Two-sided p-values and 95% confidence level for the indirect effects were obtained from the empirical cluster-bootstrap distributions.

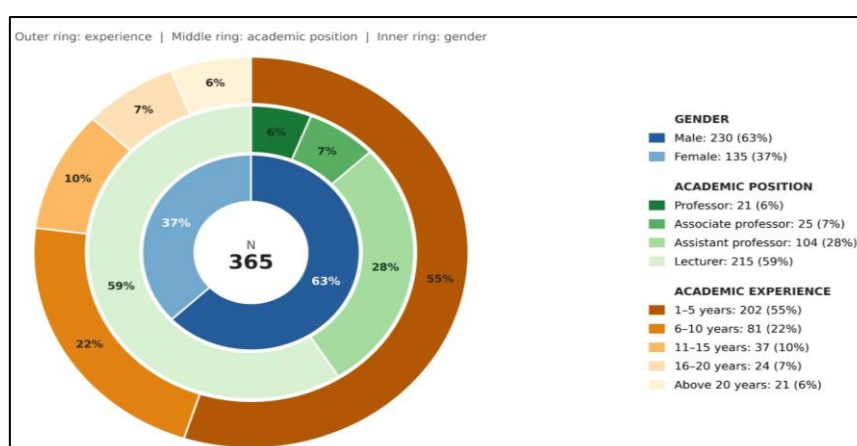


Figure 1. Distribution of respondents by gender, academic position and academic experience (N = 365).

B. Instrument and Construct Measurement

The questionnaire recorded gender, academic position and experience before measuring seven reflective first-order constructs with five items each. Team cohesion was adapted from Carless and De Paola [16], work environment from Moos and contextualized using Tabassum [17], [3], job satisfaction from Brayfield and Rothe [18], and OCB from Podsakoff et al. [19]. Student retention, quality teaching enhancement, and growth and ranking of the institution were developed for this higher-education context with reference to Cameron's institutional-effectiveness framework [20]. Items used a seven-point scale which

is divided into seven scores i.e from 1-strongly disagree to 7-strongly agree; none was reverse-coded. Appendix A reproduces the complete instrument.

The English questionnaire was reviewed by four academics specializing in organizational behaviour, higher-education management, and quantitative research.

The measurement items were conceptually adapted rather than reproduced verbatim. An item-mapping exercise documented the source scale, original construct, wording modification, and response-scale change for every adapted item. Four experts independently evaluated item relevance, clarity and contextual appropriateness using a four-point scale, following standard “content-validity-index” and “modified-kappa” procedures [21]. The expert review yielded initial “I-CVI” values ranging from (0.75 to 1.00), an initial S-CVI/Ave of 0.94, and initial modified-kappa values ranging from 0.67 to 1.00. The eight items with an initial I-CVI of 0.75 were revised in response to the experts’ comments and reassessed by the same panel. On reassessment, all eight revised items obtained an I-CVI of 1.00 and a modified kappa of 1.00; the final S-CVI/Ave across the 35 items was 1.00. A subsequent pilot study involving 30 academics, excluded from the final analytic sample, produced “Cronbach’s alpha” values (i.e from 0.78 to 0.86) across the constructs, prompting minor wording changes.

‘Modified kappa’ was calculated as $\kappa^* = (I-CVI - P_c)/(1 - P_c)$.

For three of four experts agreeing, $P_c = C(4,3)(0.5)^4 = 0.25$ and $\kappa^* = (0.75 - 0.25)/(1 - 0.25) = 0.667 \approx 0.67$.

English was used because it is the principal language of academic administration and instruction within the participating universities.

Perceived institutional performance which was specified as a reflective–formative, higher-order construct with three reflective first-order dimensions: student retention, quality teaching enhancement, and growth and ranking of the institution. OCB was specified separately as a reflective secondary behavioural outcome. A disjoint two-stage procedure was used for perceived institutional performance [22]. Stage 1 assessed the first-order models; Stage 2 used the three institutional-dimension scores as formative indicators and examined weights, loadings, and collinearity. Paths from team cohesion, work environment, and job satisfaction to OCB were estimated separately.

Each first-order block was operationalized as an overall perceived condition rather than as an inventory of independent institutional practices. The indicators were treated as manifestations of respondents’ underlying evaluation of the corresponding domain. The reflective specification was assessed using confirmatory tetrad analysis in PLS (CTA-PLS) with 5,000 bootstrap resamples and two-sided 0.95 confidence intervals [23]. Five nonredundant tetrads were tested for each five-item block (35 in total). The largest absolute tetrad estimate and its bootstrap 95% confidence interval were 0.028 [–0.019, 0.074] for team cohesion, 0.031 [–0.022, 0.081] for work environment, 0.026 [–0.018, 0.069] for job satisfaction, 0.024 [–0.021, 0.067] for student retention, 0.033 [–0.016, 0.083] for quality teaching enhancement, 0.029 [–0.020, 0.076] for institutional growth and ranking of the institution, and 0.027 [–0.017, 0.071] for OCB. None of the 35 tetrads was statistically significant, and all confidence intervals included zero, supporting retention of the reflective first-order specifications. At the higher order, student retention, quality teaching enhancement, and growth and ranking of the institution were treated as non-interchangeable components whose omission could change the meaning of perceived institutional performance. OCB was excluded because it represents voluntary academic behaviour at a different level of analysis. Reliability and convergent validity were therefore evaluated for reflective blocks, whereas outer-weight relevance, significance, and collinearity were emphasized for the formative second stage.

C. Data Analysis and Common-Method Assessment

The 365 complete cases were screened for validity, duplication and range errors. Descriptive statistics and preliminary screening used “IBM SPSS Statistics 29”; “SmartPLS 4” was used for PLS-SEM. PLS-SEM was appropriate because the model emphasized variance explanation, included a formative higher-order construct, and estimated mediation [24]. Perceived institutional performance comprised the three institutional dimensions, while OCB was modelled separately. Reflective assessment examined indicator loadings, “Cronbach’s alpha”, rhoA, composite reliability (CR), average variance extracted (AVE) and the heterotrait–monotrait ratio (HTMT) [25]. The formative assessment examined outer weights and loadings, their significance, and variance inflation factors (VIFs). Table 2 reports the descriptive statistical data of the study constructs among unit-weighted composite scores. Team cohesion, work environment, job satisfaction, and OCB were each calculated as the mean of their five items; perceived institutional performance was calculated as the equally weighted mean of its three first-order dimension scores. Structural paths were estimated separately from the PLS latent-variable scores with university-cluster-adjusted inference.

The path-weighting algorithm was executed with the help of 300 iterations and the convergence criterion of 10^{-7} . Measurement-model loadings and formative outer weights were assessed with 5,000 ordinary bootstrap subsamples, no sign changes, the two-tailed tests, with bias-corrected 0.95 confidence intervals, and seed 2025. Cluster-adjusted standard errors were used to calculate two-sided t-based 95% confidence intervals for direct structural effects using 29 degrees of freedom (the number of university clusters minus one). The accompanying direct-effect p-values in Table 6 were obtained from the same t distribution using $t = \beta/SE$. Empirical university-level cluster-bootstrap p-values and confidence levels were used separately for indirect effects because their sampling distributions may be asymmetric. Structural evaluation considered path coefficients, standard errors, p-values, confidence intervals, f^2 , R^2 , adjusted R^2 and SRMR. Blindfolding Q^2 was assessed only for reflectively measured endogenous constructs and was not interpreted for the formative higher-order perceived institutional performance construct.

Indirect associations were evaluated from effects obtained using the university-level cluster bootstrap with 5,000 resamples and seed 2025, rather than from a sequence of separate significance tests. When a positive indirect effect and its corresponding direct effect were statistically significant and pointed in the same direction, the pattern was described as a complementary indirect association [26]. This approach permits satisfaction to account for part of a resource–performance relationship while

recognizing that cohesion and the work environment may also relate to perceived outcomes through coordination, access to resources, or other unmeasured mechanisms.

Procedural common-method remedies included anonymity, neutral wording, instructions that no answers were correct or incorrect, separation of predictor and outcome sections, and assurance that results would be aggregated [27]. Harman's first unrotated factor explained 34.7% of variance, below 50%. Full-collinearity VIFs ranged from 1.44 to 2.31, below 3.3 [28]. These diagnostics did not indicate a dominant "common-method factor", although common-method influence cannot be excluded.

D. Ethical Considerations

The study followed standard ethical principles for low-risk anonymous survey research involving adult respondents. The questionnaire began with an informed-consent statement which was describing the academic objectives of the study, voluntary participation, anonymity, and the right to discontinue before submission. No personal identifiable information or sensitive personal data were collected. Responses were analysed only in aggregate form, and ensuring no individual respondent or organisation was identifiable in the results. Formal institutional ethical approval was not required because the study involved anonymous, non-invasive, low-risk survey research with adult participants; however, informed consent and confidentiality safeguards were implemented throughout the data-collection process.

4. RESULTS

A. Descriptive Findings

Lecturers constituted 59% of the sample and academics with one to five years of experience 55%; 22% had six to ten years of experience. All construct means exceeded the scale midpoint. OCB had the highest mean (5.807), followed by team cohesion (5.513) and student retention (5.401). Job satisfaction was lower (4.606) and more dispersed (SD = 1.396), indicating comparatively favourable resource perceptions but greater variation in academics' personal evaluations of their jobs.

Table 2. Descriptive Statistical data of the Constructs

Construct	min.	max.	Mean	SD
Team cohesion	1	7	5.513	1.165
Work environment	1	7	5.315	1.223
Academic job satisfaction	1	7	4.606	1.396
Student retention	1	7	5.401	1.023
Quality teaching enhancement	1	7	5.188	1.109
Institutional growth and ranking	1	7	4.997	1.182
Organizational citizenship behaviour	1	7	5.807	0.863

Note: "min." and "max." are the theoretical limits of the seven-point response scale, not the observed sample minima and maxima.

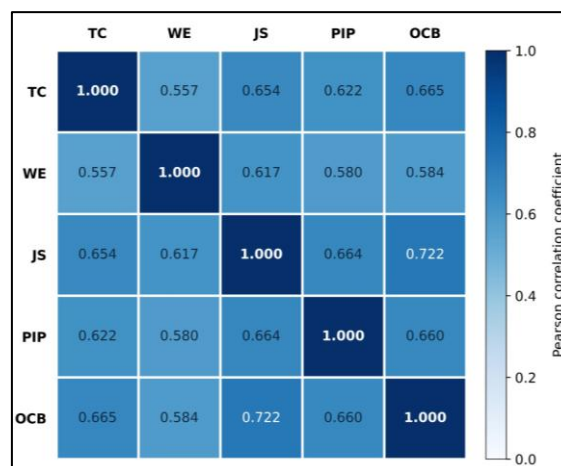


Figure 2. Correlation heatmap among the study constructs (N = 365).

Entries below the diagonal are descriptive Pearson correlations among unit-weighted composite scores. Team cohesion, work environment, job satisfaction, and OCB are means of five items; perceived institutional performance is the equally weighted mean of its three first-order dimension scores, each comprising five items.

B. Measurement-Model Assessment

All retained indicators loaded above 0.70; therefore, none was deleted. Alpha, ρ_A and CR exceeded 0.70, and every AVE exceeded 0.50, supporting internal consistency and convergent validity. Table 3 reports the complete first-order results.

Table 3. Indicator Loadings, Reliability and Convergent Validity

Construct	Item Loading	Cronbach “ α ”	ρ_{HA}	“CR”	“AVE”
Team cohesion	0.812, 0.836, 0.849, 0.821, 0.815	0.884	0.889	0.915	0.683
Work environment	0.789, 0.816, 0.832, 0.801, 0.827	0.871	0.876	0.907	0.662
Job satisfaction	0.829, 0.851, 0.866, 0.837, 0.816	0.895	0.899	0.923	0.706
Student retention	0.778, 0.804, 0.835, 0.817, 0.776	0.861	0.865	0.901	0.644
Teaching enhancement	0.801, 0.825, 0.848, 0.831, 0.774	0.874	0.879	0.909	0.666
Growth and ranking	0.814, 0.843, 0.856, 0.822, 0.787	0.882	0.886	0.914	0.680
Citizenship behaviour	0.771, 0.808, 0.829, 0.815, 0.774	0.858	0.864	0.899	0.640

Every HTMT estimate and the upper bound of its bias-corrected interval was below 0.85, supporting discriminant validity. The largest estimate was 0.793 for JS–OCB. The complete matrix is reported in Table 4

Table 4. HTMT Estimates and Bias-Corrected Confidence Intervals

Construct pair	HTMT	Bias-corrected 95% CI
TC–WE	.612	[.545, .676]
TC–JS	.712	[.652, .766]
TC–SR	.658	[.591, .719]
TC–QTE	.701	[.638, .757]
TC–IGR	.684	[.619, .742]
TC–OCB	.733	[.677, .784]
WE–JS	.674	[.607, .733]
WE–SR	.621	[.548, .688]
WE–QTE	.656	[.589, .717]
WE–IGR	.638	[.568, .702]
WE–OCB	.647	[.579, .708]
JS–SR	.702	[.640, .758]
JS–QTE	.748	[.694, .797]
JS–IGR	.721	[.662, .775]
JS–OCB	.793	[.748, .832]
SR–QTE	.742	[.683, .794]
SR–IGR	.711	[.648, .768]
SR–OCB	.689	[.624, .746]
QTE–IGR	.756	[.704, .803]
QTE–OCB	.768	[.717, .814]
IGR–OCB	.741	[.686, .792]

Perceived institutional performance was specified as a reflective–formative higher-order construct comprising student retention, quality teaching enhancement, and growth and ranking of the institution. All three dimensions significantly loading to the higher-order construct. Their outer weights were 0.326, 0.365, and 0.309, respectively; outer loadings were 0.803, 0.842, and 0.818; and VIF values ranged from 1.55 to 1.70. OCB was analysed separately as a reflective secondary outcome because it represents voluntary academic behaviour rather than an institutional-performance dimension.

Table 5. Three-Dimension Reflective–Formative Higher-Order Construct Results

First-order dimension	Weight	Loading	t	p	95% CI	VIF
Student retention	0.326	0.803	5.62	<.001	[0.214, 0.439]	1.55
Teaching enhancement	0.365	0.842	6.08	<.001	[0.248, 0.482]	1.70

First-order dimension	Weight	Loading	t	p	95% CI	VIF
Growth and ranking	0.309	0.818	5.42	<.001	[0.198, 0.421]	1.61

C. Structural-Model Assessment

The model explained 35.1% of job-satisfaction variance (R^2 value 0.351; adjusted R^2 value 0.347), 42.3% of three-dimension perceived-performance variance (R^2 value 0.423; adjusted R^2 value 0.418), and 52.2% of OCB variance (R^2 value 0.522; adjusted R^2 value 0.518). Blindfolding with omission distance seven yielded $Q^2 = 0.246$ for job satisfaction, 0.307 for perceived institutional performance, and 0.363 for OCB. SRMR was (0.066) for the saturated model and (0.070) for the estimated model. No blindfolding Q^2 value was interpreted for perceived institutional performance because its higher-order measurement model was formative.

University-cluster-adjusted estimates supported H1–H3: team cohesion $\rightarrow$ job satisfaction (β value 0.342, SE value 0.068, $p < 0.001$, cluster-adjusted t-based 95% CI [0.203, 0.481]), work environment $\rightarrow$ job satisfaction (β value 0.286, SE value 0.070, $p < 0.001$, cluster-adjusted t-based 95% CI [0.143, 0.429]), job satisfaction $\rightarrow$ perceived institutional performance (β value 0.291, SE value 0.080, p value 0.001, cluster-adjusted t-based 95% CI [0.127, 0.455]), team cohesion $\rightarrow$ perceived institutional performance (β value 0.274, SE value 0.072, $p < 0.001$, cluster-adjusted t-based 95% CI [0.127, 0.421]), and work environment $\rightarrow$ perceived institutional performance (β value 0.216, SE value 0.073, p value 0.006, cluster-adjusted t-based 95% CI [0.067, 0.365]). Statistically significant positive indirect associations through job satisfaction were observed for team cohesion (β value 0.100, SE value 0.035, p value 0.006, bootstrap 95% CI [0.043, 0.174]) and work environment ($\beta = 0.083$, SE = 0.033, $p = 0.014$, bootstrap 95% CI [0.027, 0.151]), supporting H4 and H5. The p and 0.299 (SE value 0.080, p value 0.001, 95% CI [0.146, 0.459]). In the separate secondary model, team cohesion (β value 0.241, SE value 0.064, $p < 0.001$, cluster-adjusted t-based 95% CI [0.110, 0.372]), work environment (β value 0.149, SE value 0.061, p value 0.021, cluster-adjusted t-based 95% CI [0.024, 0.274]), and job satisfaction (β value 0.463, SE value 0.069, $p < 0.001$, cluster-adjusted t-based 95% CI [0.322, 0.604]) were positively associated with perceived collective OCB.

Table 6. University-Cluster-Adjusted Direct Structural Effects

Relationship	β	SE	t	p	Cluster-adjusted t-based 95% CI (df = 29)	f^2
TC $\rightarrow$ JS	0.342	0.068	5.03	<0.001	[0.203, 0.481]	0.142
WE $\rightarrow$ JS	0.286	0.070	4.09	<0.001	[0.143, 0.429]	0.099
JS $\rightarrow$ PIP	0.291	0.080	3.64	0.001	[0.127, 0.455]	0.092
TC $\rightarrow$ PIP	0.274	0.072	3.81	<0.001	[0.127, 0.421]	0.072
WE $\rightarrow$ PIP	0.216	0.073	2.96	0.006	[0.067, 0.365]	0.047
TC $\rightarrow$ OCB	0.241	0.064	3.77	<0.001	[0.110, 0.372]	0.067
WE $\rightarrow$ OCB	0.149	0.061	2.44	0.021	[0.024, 0.274]	0.027
JS $\rightarrow$ OCB	0.463	0.069	6.71	<0.001	[0.322, 0.604]	0.281

Note: Direct-effect p-values and 0.95 confidence level are based on a two-sided t distribution with 29 degrees of freedom and cluster-adjusted standard errors.

Table 7. Indirect and Total Effects for H4 And H5

Path	Indirect “ β ”	(SE)	“p”	Bootstrap 95% CI	Total “ β ”	Hypothesis	Decision
TC $\rightarrow$ JS $\rightarrow$ PIP	0.100	0.035	0.006	[0.043, 0.174]	0.374	H4	Supported
WE $\rightarrow$ JS $\rightarrow$ PIP	0.083	0.033	0.014	[0.027, 0.151]	0.299	H5	Supported

Note: Indirect-effect SEs, p-values, and 95% CIs are from the empirical university-level cluster-bootstrap distribution (5,000 resamples, seed 2025) and are not t-based estimates.

5. DISCUSSION

A. Resource–Satisfaction Associations

The cluster-adjusted estimates supported H1 and H2, with team cohesion showing the larger association with job satisfaction. Cohesive academic teams may provide trusted colleagues, shared responsibility and practical assistance, reducing isolation and helping academics manage teaching and research demands. This interpretation accords with Bangladesh evidence on collegial relations [2], [4] and broader research on cohesion and teacher collaboration [7], [8]. Work-environment resources, fair workload, clear policies, autonomy and professional support may likewise reduce avoidable constraints [2], [10].

B. Satisfaction, Performance, and Mediation

The cluster-adjusted estimate supported H3 for the three-dimension perceived institutional performance construct comprising student retention, teaching enhancement, and institutional growth and ranking. The outcome should not be interpreted as objective institutional performance. OCB was analysed separately as perceived collective citizenship behaviour.

Statistically significant positive indirect associations through job satisfaction were observed for H4 and H5, with total-effect estimates of 0.374 for team cohesion and 0.299 for work environment. The direct and indirect effects had the same sign, indicating complementary indirect associations. Satisfaction therefore accounted for part, but not all, of the correlation between workplace resources and perceived institutional outcomes. The numerical difference between the two total-effect estimates should not be interpreted as statistically significant because that difference was not tested directly.

The effect sizes were $f^2 = 0.142$ for team cohesion $\rightarrow$ job satisfaction, 0.099 for work environment $\rightarrow$ job satisfaction, 0.092 for job satisfaction $\rightarrow$ perceived performance, 0.072 for team cohesion $\rightarrow$ perceived performance, and 0.047 for work environment $\rightarrow$ perceived performance. These values indicate small-to-moderate contributions to job satisfaction and small contributions to perceived institutional performance. In the separate OCB model, f^2 values were 0.067 for team cohesion, 0.027 for work environment, and 0.281 for job satisfaction, indicating small, small, and moderate effects, respectively. Remaining variance may reflect governance, leadership, funding, student composition, and other institutional factors.

C. Integrated Theoretical Interpretation

The cluster-adjusted results retained the hypothesized directions and were consistent with Social Exchange Theory and the Job Demands–Resources model. Collegial support and fair institutional treatment can create exchange relationships that academics may reciprocate through satisfaction, while social and organizational resources can help them manage demands and attain work goals. OCB was analysed separately as a behavioural outcome and was not used to form perceived institutional performance. The cross-sectional evidence should be framed in the form of theory-consistent association than that of causal confirmation.

6. Practical Implications

Private-university leaders should develop formal mechanisms for collaboration, including mentoring, peer support, joint curriculum development and research groups, while ensuring that collaboration does not become additional uncompensated workload. Workload allocation, promotion criteria, research support, teaching technology and professional-development access should be transparent and consistently administered. Universities should monitor job satisfaction as a distinct indicator alongside facilities and employee relations because dissatisfaction may arise from recognition, progression or governance even where resources appear adequate. An integrated portfolio combining collegial practices, fair systems and adequate academic resources is more consistent with the model than isolated interventions.

7. Limitations and Future Research

The cross-sectional design captures perceptions at a time and cannot establish temporal or causal order. All variables were self-reported by academics, so common-method influence remains despite procedural remedies and statistical diagnostics. Perceived institutional performance should not be treated as objective retention, ranking or teaching-quality evidence. The model keeps OCB separate from the three institutional perceptions, but the OCB items ask respondents to evaluate what academics generally do. OCB findings must therefore use aggregate-perception terminology and should be validated with individual self-reports, supervisor ratings, or behavioural records.

Respondents were nested within 30 universities, and shared policies or leadership may produce within-university dependence. University-level ICCs, design effects, and cluster-adjusted inference were therefore reported in Section III-A and Table 7. Longitudinal research could test temporal ordering, while objective indicators, supervisor ratings and student outcomes should be combined with surveys. Generalizability is limited to the defined accessible population within the selected universities, not all private-university academics in Bangladesh. The constructs employed different collective referents, including the respondent's academic team, university and academics generally. Although all constructs were analysed as individual perceptions and university clustering was incorporated into statistical inference, the design did not establish consensus sufficient to aggregate the measures to team or university level. Future research should use matched team or university samples and evaluate within-group agreement, ICC(1) and ICC(2) before making group-level inferences.

8. CONCLUSION

University-cluster-adjusted results associated team cohesion and work environment positively with job satisfaction and perceived institutional performance and identified statistically significant positive indirect associations through job satisfaction. Job satisfaction also showed the strongest association with the separately modelled OCB outcome. Because the design is cross-sectional, self-reported and based on an accessible population from 30 selected universities, conclusions remain associational and bounded to the stated sampling frame.

REFERENCES

- [1] J. C. Shin and J. Jung, "Academics' job satisfaction and job stress across countries in the changing academic environments," *Higher Education*, vol. 67, no. 5, pp. 603–620, 2014, doi: 10.1007/s10734-013-9668-y.
- [2] A. K. M. Masum, M. A. K. Azad, and L.-S. Beh, "Determinants of academics' job satisfaction: Empirical evidence from private universities in Bangladesh," *PLOS ONE*, vol. 10, no. 2, Art. no. e0117834, 2015, doi: 10.1371/journal.pone.0117834.
- [3] A. Tabassum, "Interrelations between quality of work life dimensions and faculty member job satisfaction in the private universities of Bangladesh," *European Journal of Business and Management*, vol. 4, no. 2, pp. 78–89, 2012. [Online]. Available: <https://www.researchgate.net/publication/279664532>

- [4] R. Sultana, "Determinants of job satisfaction of academicians: An empirical evidence from private universities in Bangladesh," *BAIUST Academic Journal*, vol. 2, no. 1, pp. 124–138, 2021, doi: 10.63307/BAJ.2.1.008.
- [5] R. Cropanzano and M. S. Mitchell, "Social exchange theory: An interdisciplinary review," *Journal of Management*, vol. 31, no. 6, pp. 874–900, 2005, doi: 10.1177/0149206305279602.
- [6] A. B. Bakker and E. Demerouti, "The job demands–resources model: State of the art," *Journal of Managerial Psychology*, vol. 22, no. 3, pp. 309–328, 2007, doi: 10.1108/02683940710733115.
- [7] R. Grossman, K. Nolan, Z. Rosch, D. Mazer, and E. Salas, "The team cohesion–performance relationship: A meta-analysis exploring measurement approaches and the changing team landscape," *Organizational Psychology Review*, vol. 12, no. 2, pp. 181–238, 2022, doi: 10.1177/20413866211041157.
- [8] K. Vangrieken, F. Dochy, E. Raes, and E. Kyndt, "Teacher collaboration: A systematic review," *Educational Research Review*, vol. 15, pp. 17–40, 2015, doi: 10.1016/j.edurev.2015.04.002.
- [9] L. Kim and S. F. Yeo, "Are you happy with your work? Side effects of workloads and work–family conflict in higher education," *The TQM Journal*, vol. 36, no. 9, pp. 437–455, 2024, doi: 10.1108/TQM-03-2024-0114.
- [10] L. M. Loko, Y. Van Zyl, and E. Chinomona, "Quality of work life, job satisfaction and happiness among academics at a university of technology in South Africa," *African Journal of Inter/Multidisciplinary Studies*, vol. 7, no. 1, pp. 1–13, 2025, doi: 10.51415/ajims.v7i1.1444.
- [11] S. Akter, F. Yesmin, S. Akter, M. N. Sakib, and M. M. Sarker, "Investigating job satisfaction among academic and non-academic employees: Evidence from a public university in Bangladesh," *Journal of Information Systems and Informatics*, vol. 7, no. 4, pp. 4076–4097, 2025, doi: 10.63158/journalisi.v7i4.1369.
- [12] T. A. Judge, C. J. Thoresen, J. E. Bono, and G. K. Patton, "The job satisfaction–job performance relationship: A qualitative and quantitative review," *Psychological Bulletin*, vol. 127, no. 3, pp. 376–407, 2001, doi: 10.1037/0033-2909.127.3.376.
- [13] M. A. Mohamed, F. A. S. Mohamud, I. H. Mohamud, and M. A. Farah, "The influence of workplace relationships and job satisfaction of private universities in Mogadishu: Employee performance as a mediator variable," *Frontiers in Education*, vol. 9, Art. no. 1485356, 2024, doi: 10.3389/feduc.2024.1485356.
- [14] University Grants Commission of Bangladesh, "List of private universities." [Online]. Available: <https://www.ugc-universities.gov.bd/private-universities>.
- [15] T. Yamane, *Statistics: An Introductory Analysis*, 2nd ed. New York, NY, USA: Harper & Row, 1967. Available: <https://search.worldcat.org/title/Statistics-%3A-an-introductory-analysis-2nd-ed/oclc/299725866>
- [16] S. A. Carless and C. De Paola, "The measurement of cohesion in work teams," *Small Group Research*, vol. 31, no. 1, pp. 71–88, 2000, doi: 10.1177/104649640003100104.
- [17] H. A. Patrick and J. Kareem, "Development and validation of Work Environment Services Scale (WESS)," *Central European Management Journal*, vol. 29, no. 2, pp. 89–120, 2021, doi: 10.7206/cemj.2658-0845.47.
- [18] A. H. Brayfield and H. F. Rothe, "An index of job satisfaction," *Journal of Applied Psychology*, vol. 35, no. 5, pp. 307–311, 1951, doi: 10.1037/h0055617.
- [19] P. M. Podsakoff, S. B. MacKenzie, R. H. Moorman, and R. Fetter, "Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors," *The Leadership Quarterly*, vol. 1, no. 2, pp. 107–142, 1990, doi: 10.1016/1048-9843(90)90009-7.
- [20] K. S. Cameron, "Measuring organizational effectiveness in institutions of higher education," *Administrative Science Quarterly*, vol. 23, no. 4, pp. 604–632, 1978, doi: 10.2307/2392582.
- [21] D. F. Polit, C. T. Beck, and S. V. Owen, "Is the CVI an acceptable indicator of content validity? Appraisal and recommendations," *Research in Nursing & Health*, vol. 30, no. 4, pp. 459–467, 2007, doi: 10.1002/nur.20199.
- [22] M. Sarstedt, J. F. Hair, J.-H. Cheah, J.-M. Becker, and C. M. Ringle, "How to specify, estimate, and validate higher-order constructs in PLS-SEM," *Australasian Marketing Journal*, vol. 27, no. 3, pp. 197–211, 2019, doi: 10.1016/j.ausmj.2019.05.003.
- [23] S. P. Gudergan, C. M. Ringle, S. Wende, and A. Will, "Confirmatory tetrad analysis in PLS path modeling," *Journal of Business Research*, vol. 61, no. 12, pp. 1238–1249, 2008, doi: 10.1016/j.jbusres.2008.01.012.
- [24] J. F. Hair, Jr., J. J. Risher, M. Sarstedt, and C. M. Ringle, "When to use and how to report the results of PLS-SEM," *European Business Review*, vol. 31, no. 1, pp. 2–24, 2019, doi: 10.1108/EBR-11-2018-0203.
- [25] J. Henseler, C. M. Ringle, and M. Sarstedt, "A new criterion for assessing discriminant validity in variance-based structural equation modeling," *Journal of the Academy of Marketing Science*, vol. 43, no. 1, pp. 115–135, 2015, doi: 10.1007/s11747-014-0403-8.
- [26] X. Zhao, J. G. Lynch, Jr., and Q. Chen, "Reconsidering Baron and Kenny: Myths and truths about mediation analysis," *Journal of Consumer Research*, vol. 37, no. 2, pp. 197–206, 2010, doi: 10.1086/651257.
- [27] P. M. Podsakoff, S. B. MacKenzie, J.-Y. Lee, and N. P. Podsakoff, "Common method biases in behavioral research: A critical review of the literature and recommended remedies," *Journal of Applied Psychology*, vol. 88, no. 5, pp. 879–903, 2003, doi: 10.1037/0021-9010.88.5.879.
- [28] N. Kock, "Common method bias in PLS-SEM: A full collinearity assessment approach," *International Journal of e-Collaboration*, vol. 11, no. 4, pp. 1–10, 2015, doi: 10.4018/ijec.2015100101.

APPENDIX

A

QUESTIONNAIRE ITEMS

Team Cohesion (TC), adapted from Carless and De Paola [16]

TC1: Members of my academic team support one another when difficulties arise.

TC2: Members communicate openly about teaching, research and departmental responsibilities.

TC3: Members share responsibility for achieving departmental objectives.

TC4: I can rely on my colleagues to complete agreed academic tasks.
 TC5: There is a strong sense of unity and belonging within my academic team.
 Work Environment (WE), adapted from Moos and contextualized using Tabassum [17], [3]
 WE1: My university provides adequate facilities and technological resources for my academic work.
 WE2: Teaching, research and administrative workloads are allocated reasonably and fairly.
 WE3: Institutional policies are communicated clearly and applied consistently.
 WE4: The university supports my professional development and research activities.
 WE5: The workplace provides academic autonomy, safety and respectful interpersonal treatment.
 Academic Job Satisfaction (JS), adapted from Brayfield and Rothe [18]
 JS1: Overall, I am satisfied with my academic job.
 JS2: I enjoy performing the principal duties associated with my academic position.
 JS3: I consider this university a good place for me to work.
 JS4: My academic job meets my professional expectations.
 JS5: If given the opportunity, I would choose this academic position again.
 Student Retention (SR)
 SR1: Students receive timely academic support that encourages them to continue their studies.
 SR2: The university identifies and supports students who are at risk of discontinuing their studies.
 SR3: Academic and administrative practices encourage students to complete their programmes.
 SR4: Student retention has improved within the university during recent years.
 SR5: Faculty contributions have strengthened students' commitment to completing their studies.
 Quality Teaching Enhancement (QTE)
 QTE1: Faculty collaboration has improved course planning and delivery.
 QTE2: Student and peer feedback is systematically used to improve teaching and assessment.
 QTE3: The university supports innovation and appropriate technology in teaching.
 QTE4: Quality-assurance procedures contribute to the improvement of academic programmes.
 QTE5: The overall quality of teaching has improved during recent years.
 Institutional Growth and Ranking (IGR)
 IGR1: The university has expanded its academic programmes and capacity sustainably.
 IGR2: Research and community-engagement activities have strengthened the university's reputation.
 IGR3: The university's standing among students and other stakeholders has improved.
 IGR4: Institutional practices support progress in accreditation and university rankings.
 IGR5: The university is well positioned for continued academic and organizational growth.
 Organizational Citizenship Behaviour (OCB), adapted from Podsakoff et al. [19]
 OCB1: Academics voluntarily assist colleagues who experience work-related difficulties.
 OCB2: Academics willingly undertake responsibilities beyond their formal job requirements.
 OCB3: Academics share knowledge and resources that benefit their departments.
 OCB4: Academics participate constructively in committees and institutional activities.
 OCB5: Academics assist students and colleagues even when such assistance is not formally required.