

RESEARCH ARTICLE

Unpacking school leadership: The interplay between conflict management, record management, and resource management

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ABSTRACT

In developing countries, the effectiveness of educational leadership necessitates integrated management strategies that address the challenges of transformation while maintaining a focus on core educational outcomes. This study examines the collective impact of conflict management, record-keeping, and resource allocation on educational leadership in Punjab, Pakistan, with implications for similar educational contexts worldwide. A total of 248 secondary school educational managers were surveyed using stratified random sampling across urban and rural districts. Employing correlation, regression, mediation, and moderation analyses, the results indicate that systematic record management serves as a critical mechanism between conflict resolution and leadership effectiveness, accounting for 47% of the relationship. Contrary to theoretical expectations, conflict management did not significantly moderate the relationship between resource management and leadership effectiveness, suggesting that these functions operate independently rather than synergistically. These findings contribute to educational management theory by demonstrating that effective leadership emerges from both direct and mediated pathways between management functions. This study has global applications for educational leadership, with specific relevance for resource-constrained situations. Professional development programs should prioritize systematic record management as a foundation while developing conflict resolution and resource allocation as distinct but complementary competencies.

Keywords: Educational management; conflict resolution; record management; human resource management; school leadership

1. Introduction

This represents a significant shift in the field of educational management in the computerized world.

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Leaders have recognized the role of digital transformation in enhancing the effectiveness of information critically to stakeholders ^[1]. The COVID-19 pandemic has also necessitated the adoption of various management strategies by educational organizations, considering the pandemic's impact on a complex and dynamically changing environment.

More recent studies highlight conflict management, record-keeping, and resource distribution as key areas of research in educational leadership. Nevertheless, recent meta-analyses demonstrate that the effectiveness of educational leadership varies significantly across different cultural settings, reflecting a moderate impact on student achievement. According to ^[2], this level of educational leadership has a medium-level impact on student attainment, as evidenced in a total of 348 independent studies involving 3,659,268 participants. This impact is felt more strongly in collectivistic cultures than in individualistic ones. Such management roles, when sought to create educational systems, are challenged by unique aspects, including a lack of digital infrastructure, resource constraints, and complex controls.

An effective school management operates in a dynamic learning environment that seeks to maximize the outcomes achieved in the learning process ^[3]. School leaders face challenges in conflict resolution, record maintenance, and resource allocation, all of which must be addressed simultaneously in modern-day education institutions.

These functions must be in place to have good school leadership ^[4, 5]. Conflict management provides educational leaders with the opportunity to respond in a planned manner, thereby shaping the integrity of the association. Research shows that principals with practice in conflict management in schools create more collaborative work settings and fewer distractions in instructional processes ^[6].

The challenges mentioned naturally lead one to ask how fundamental management activities, such as conflict resolution, record management, and resource allocation, work and interact in educational leadership settings. In this respect, it is informed by both global and local empirical evidence in establishing these functions within the broader debate on the effectiveness of educational leadership. Through this line of interconnection with the current study in this continuum, we cross the chasm between global educational theory and the actual operational context of the leadership system in schools in Punjab.

1.1. Rationale of the study

Conflict management, record-keeping, and resource management are essential aspects of educational management. Through this process, not only are disputes resolved, but trust and mutual respect among workers are also built, leading to success in an organization ^[6]. Similarly, to ensure accountability, transparency, and decision-making, record-keeping plays a productive role. Documents with systematic accuracy are helpful in monitoring and allocating adequate resources ^[7]. Resource management is another crucial aspect of strategically allocating human and financial resources in school leadership. It directly impacts students' achievement and instructional quality. Leaders who prioritize the equitable distribution of resources are more likely to ensure the attainment of their schools' operational and academic objectives ^[8, 9]. The programs designed to help professionals navigate these domains must form an integral part of the professional development efforts aimed at preparing educational leaders to address multifaceted problems ^[10, 11]. Leaders require continuous learning opportunities to adapt to changing educational environments and implement evidence-based practices, ultimately leading to school improvement ^[12, 13]. Completing competency gaps and fostering a culture of lifelong learning, alongside leadership development and performance, contribute to higher academic levels among students and the overall success of a school.

1.2. Research context: Punjab's educational landscape

The Punjab educational management system mirrors a hierarchical system, where principals must work within local school exigencies while navigating the framework of bureaucratic rigidity. Due to such tension, the relevance of integrated management becomes evident, particularly in addressing these challenges. Also, standardized provincial programs of professional development have been introduced by Quaid-e-Azam Academy of Educational Development (QAED) to evaluate competency in management.

Although this study focuses on Punjab, it generates insights that are potentially relevant to other provinces with similar educational structures and challenges. The findings particularly apply to regions characterized by resource constraints, centralized educational policies, and ongoing educational reform efforts. However, we acknowledge that regional variations in educational contexts must be considered when generalizing these results beyond Punjab.

1.3. Research objective

This study examined the role of resource management skills in effective school management, with record management serving as a mediator and conflict management as a moderator.

1.4. Research hypotheses

The following were the research hypotheses of this study:

1. Conflict management has a positive and significant effect on school leadership and organizational climate.
2. Record management positively impacts decision-making and administrative accountability in schools.
3. Record management mediates the relationship between conflict management and school administration efficiency, strengthening leadership outcomes.
4. Conflict management moderates the relationship between resource management and school leadership effectiveness, such that higher conflict resolution skills enhance the impact of resource allocation on leadership effectiveness.

2. Literature review

Digital transformation has become essential for educational managers, particularly in integrating technology with traditional management practices that focus on educational outcomes ^[1]. Modern research necessitates a hybrid approach to financial management, striking a balance between central budgeting and revenue sharing while maintaining robust expenditure control and prioritizing funding that exceeds school limits. Higher education institutions are facing various challenges, including declining enrollments, unpredictable government funding, and the need for increased revenue development.

Educational quality and institutional effectiveness are closely tied to effective Human Resource Management (HRM). HRM in schools encompasses strategic tasks such as recruiting teachers, providing professional development, conducting performance appraisals, and ensuring retention ^[14], which shape the learning environment. A well-established HRM system encourages better motivation among faculty (teachers), which increases the productivity of students and schools.

HRM plays a crucial role in exploring work culture, which is essential for the professionalization of teaching and addressing the need for educational innovations beyond teacher recruitment, selection, and evaluation. HRM strategies stimulate collaborative leadership, expand problem-solving capacity, and foster teacher satisfaction, which is essential for continuous organizational progress (OECD, 2014). Moreover, the

introduction of contemporary HRM principles will enable schools to manage knowledge more effectively, thereby allowing them to improve the quality of teaching and administrative procedures continually [15, 16].

Similar to HRM, studies have claimed that long-term training, counseling, and leadership programs contribute to increasing institutions' mobilization and students' access [17, 18]. High-quality development schools are associated with higher teacher engagement rates, improved instructional practices, and better standardized test scores [19, 13].

Teacher training courses are also promoted in the domains of conflict resolution and resource management. Research has demonstrated that professional development workshops focused on data-driven decision-making and collaborative problem-solving significantly enhance school system leadership [20, 21]. Moreover, the Quaid-e-Azam Academy for Educational Development (QAED) has implemented promotion-linked training (PLT) programs, which have resulted in measurable improvements in financial management skills and administrative efficiency [18].

The interrelationship between Human Resource Management (HRM) and record management is evident, as data-informed decision-making is essential for the formulation of human resource plans, recruitment processes, and the evaluation of human resource performance. Comprehensive HRM and record management systems in schools generally reduce administrative workflow conflicts and maximize the learning environment [22].

Conflict management is an important area of HRM involvement in school leadership and educational governance. Research indicates that school conflict arises from interpersonal disputes, resource competition, and administrative inefficiencies [23,24]. Structured conflict resolution mechanisms developed by school leaders foster collaboration and productive learning environments [25].

2.1. Causes and impacts of conflict in schools

In schools, different levels of conflict manifest that affect both the general functionality of the school and the effectiveness of its leadership. Conflicts between teachers may arise from role ambiguity, professional jealousy, or pedagogical disagreements, which can create tension among staff members. Similarly, conflicts may exist between teachers and administrators emanating from unclear leadership direction, complications in assigning workload, and/or the setting of performance metrics that may hold the staff against the management team. Poorly managed conflict can deteriorate student performance and have institutional consequences alongside other factors such as low teacher morale, productivity, and a bad school climate. Therefore, problem-solving, mediated discussions, and open-ended decision-making conflict resolution practices enhance communication and school effectiveness.

2.2. Professional development and school leadership

Professional development programs focused on leadership skills, conflict resolution, and data management are crucial for preparing administrators to manage school administration and group dynamics effectively. However, these are intended to provide educational managers with the tools to allocate strategic resources effectively and ensure that financial and human resources are utilized efficiently. Moreover, an organized record management system enables school leadership to track student performance and adjust instructional techniques accordingly. Furthermore, administrators must acquire conflict resolution skills to effectively resolve disputes and foster a positive school climate [18, 26].

The history of the administration is also closely tied to that of QAED, which has made significant contributions to the field of education administration in Pakistan, particularly in the area of quality assurance in education. Additionally, training helps equip school managers with good practices and enhances

leadership skills [10]. Previous studies have shown that high accountability, transparency, and increased student achievement are consistently present in organizations. As such, conflict management in school leadership models, professional training, and resource management have become a necessity to be inculcated [4].

2.3. Contemporary perspectives on educational management integration

Recent studies consider an inseparable combination of management functions to be a prerequisite for effective educational leadership. [27] states that the process of knowledge management practices in educational establishments can be defined by integrating information management, resource distribution, and collaborative conflict resolution methods. Similarly, [28] proposes two educational leadership models for a whole school, combining various management areas to address the dilemmas schools face.

2.4. Human resource management and school leadership

The current literature has highlighted the relationship between educational quality, organizational performance, and Human Resource Management (HRM) practices. Currently, HRM in schools encompasses strategic tasks such as teacher recruitment, professional development, performance appraisal, and teacher retention strategies, which collectively shape the learning environment.

Modern HRM approaches in educational settings extend beyond traditional personnel functions, utilizing strategies to develop organizational work cultures that foster collaboration and facilitate educational innovations.

2.5. Integrated educational management theory

In educational management theory, this study makes a contribution by proposing an Integrated Educational Management Model that identifies both the interconnection and impartiality of management functions. Building on meta-analytical indications showing principal leadership effects on student achievement [2], our model suggests that management effectiveness appears from both direct and mediated pathways.

3. Research methodology

3.1. Research design

The current study employed a quantitative approach, utilizing a positivist paradigm to analyze and relate variables logically and objectively [29]. The same research design was used to statistically validate the findings on school administration, record management, conflict management, and resource management. It also allows for systematic testing of hypotheses, enabling the findings to be generalized and replicable across a vast population [30].

3.2. Population and sampling

A purposive two-stage stratified sampling was used to randomly select participants from the population of secondary school educational managers (principals) in Punjab. In the first stage, we categorized schools into regional strata, representing northern Punjab (Rawalpindi, Attock), central Punjab (Lahore, Faisalabad), and southern Punjab (Multan, Bahawalpur), as well as urban and rural locations within each of these regions.

From this stratified cluster, we randomly chose 248 participants (130 males and 118 females) who constituted diverse educational contexts in Punjab. The calculated sample size of 303 exceeds the minimum required by [31] of 246, giving us sufficient statistical power to carry out our analyses. While the selection process followed a purposive two-stage stratified sampling approach to ensure balanced representation of regions and school types, random selection was applied within each stratum to reduce selection bias.

Table 1. Participant demographics and institutional characteristics

Variable	Category/Statistic	N	%/M
Gender	Male	130	52.4%
	Female	118	47.6%
Region	Northern (Rawalpindi)	38	15.3%
	Northern (Attock)	31	12.5%
	Central (Lahore)	46	18.5%
	Central (Faisalabad)	44	17.7%
	Southern (Multan)	42	16.9%
	Southern (Bahawalpur)	47	19.1%

Our sample included 248 educational managers (130 male, 118 female) from across Punjab province. Geographically, our sample included representation from all major regions of Punjab: Northern (Rawalpindi, 15.3%; Attock, 12.5%), Central (Lahore, 18.5%; Faisalabad, 17.7%), and Southern (Multan, 16.9%; Bahawalpur, 19.1%).

3.3. Data collection instrument

We developed a structured questionnaire with a 5-point Likert scale to assess respondents' perceptions of conflict, record-keeping, resource allocation, and effective school management. The instrument comprised 70 items across four sections:

- Conflict Management Strategies:** (18 items, adapted from QAED training materials)
- Assessed principals' approaches to resolving disputes, facilitating communication, and maintaining productive relationships among staff, students, and parents.**
- Record Management Practices:** (17 items, adapted from QAED training materials): Evaluated systematic approaches to organizing, storing, and utilizing educational data and documentation.
- Resource Allocation Efficiency (16 items, adapted from QAED training materials) measures** the strategic distribution and utilization of financial, human, and physical resources.
- Effective School Management** (19 items, developed based on contemporary literature): Assessed overall leadership effectiveness, including decision-making, communication, and organizational outcomes.

3.4. Instrument reliability and validity

Cronbach's alpha for the overall instrument was 0.989, indicating high internal consistency. To establish construct validity, we conducted confirmatory factor analysis (CFA) using Jamovi software (version 2.6.19). The four-factor model demonstrated a good fit: CFI = 0.94, TLI = 0.93, RMSEA = 0.057 (90% CI [0.050, 0.064]), SRMR = 0.043. The Cronbach's α for the overall instrument was 0.989, indicating excellent internal consistency as values above 0.95 can suggest redundancy among items (Tavakol & Dennick, 2011). In this case, the high α was considered acceptable due to the multidimensional nature of the constructs, alignment with established scales, and the theoretical need to capture the breadth of each management domain.

3.5. Data collection and data analysis

The data were collected during the Promotion-Linked Training (PLT) programs, and the response rate was maximized, thereby reducing non-response bias [32]. Participants were assigned to complete the questionnaire in a designated session, alone or with research assistants ready to clarify any questions.

Data analysis was conducted using Jamovi statistical software (version 2.6.19), an open-source platform built on R that provides both a graphical user interface and comprehensive statistical capabilities. We selected Jamovi for its accessibility, transparency, and robust capabilities for the required analyses. Initial data screening included checks for missing values (less than 2% per variable, handled via mean substitution), univariate and multivariate outliers (none exceeding ± 3.29 standard deviations), and assumption testing for normality, linearity, and homoscedasticity.

Skewness and kurtosis values for all variables were within acceptable ranges (± 2), scatterplots indicated linear relationships, and residual plots confirmed homoscedasticity.

All variables were measured through self-report instruments administered in the same survey session, which may introduce common method bias. Future research could mitigate this by employing multiple data sources, such as performance records or third-party assessments.

Moreover, data were collected during Promotion-Linked Training programs, which may introduce selection biases, as participating principals may be more motivated or engaged than those who do not attend such training. These factors should be considered when interpreting the generalizability of results.

3.6. Research ethics

This study adhered to the ethical considerations recommended by [40], including obtaining informed consent, Maintaining Confidentiality and Anonymity, and Ensuring Transparency in Reporting.

4. Results

The results are listed in **Table 2**.

Table 2. Descriptive statistics and correlations among study variables

Variable	M	SD	1	2	3
1. Conflict Management	3.82	0.68	—		
2. Record Management	3.65	0.72	.62***	—	
3. Resource Management	3.74	0.65	.51***	.58***	—
4. Effective School Management	3.89	0.70	.68***	.70***	.65***

The mean scores indicated moderate to high levels of conflict management ($M = 3.82$, $SD = 0.68$), record management ($M = 3.65$, $SD = 0.72$), and resource management ($M = 3.74$, $SD = 0.65$) among the participating educational managers. Correlation analysis revealed significant positive relationships between all management domains and effective school leadership, with correlation coefficients ranging from $r = 0.51$ to $r = 0.70$ (all $p < .001$).

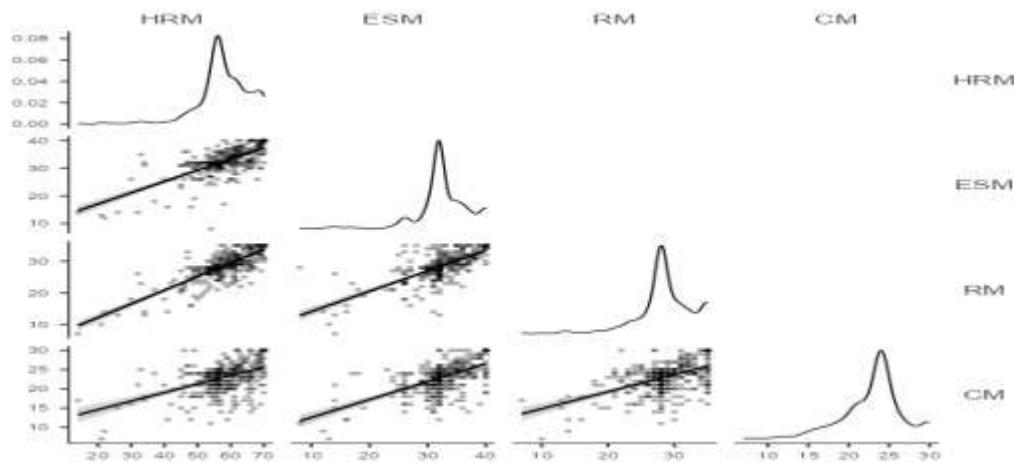


Figure 1. Correlation Plot

We developed the first hypothesis to examine the contribution of HRM to ESM. We collected data for both variables using a five-point Likert scale. H1 was tested using simple linear regression, and the results are presented in **Table 2**.

Hypothesis 1: Conflict management positively influences school leadership and organizational climate

Table 3. Contribution of HRM to ESM (Model Coefficient-ESM)

Predictor	B	SE	t	P
Intercept	8.88	1.30	6.82	< .001
Human resource management (HRM)	.41	.02	18.32	< .001

R = .69, *R*² = .47, *F*(1, 372) = 336, *p* < .001

The above table presents the results for H1. The analysis reveals that the intercept ($B_0 = 8.88$, $SE = 1.88$, $t = 6.82$, $p < .001$) indicates a significant expected mean value when human resource management (HRM) is zero. The slope of HRM ($B_1 = .41$, $SE = .02$, $t = 18.32$, $p < .001$) suggests that for every one-unit increase in HRM, the outcome variable (ESM) increases by .41 units. The significant value of t (18.32) indicates that HRM makes a substantial contribution to and predicts participants' ESM, which supports H1.

Hypothesis 2: Efficient record management practices improve decision-making and accountability in schools.

Table 4. Mediation Estimates

Effect	Estimate	SE	95 % Confidence Interval		Z	p	% Mediation
			Lower	Upper			
Indirect	.193	.04	.116	.263	5.06	< .001	47
Direct	.215	.05	.118	.308	4.49	< .001	53
Total	.407	.03	.347	.468	13.61	< .001	100

The above table presents the results for H2. The analysis revealed a statistically significant mediating effect. The indirect impact of the mediator on participants' effective school management ($B = .193$, $SE = .04$, $Z = 5.63$, $p < .001$) with a 95% confidence interval of (.116, .263) is statistically significant, accounting for 47% of the total effect. The direct impact of human resource management (independent of the mediator) ($B = .215$, $SE = .05$, $Z = 4.49$, $p < .001$) is also statistically significant, with a 95% confidence interval of

(.118, .308), accounting for 53% of the total effect. A graphical representation of the mediation analysis is presented in **Figure 2**.

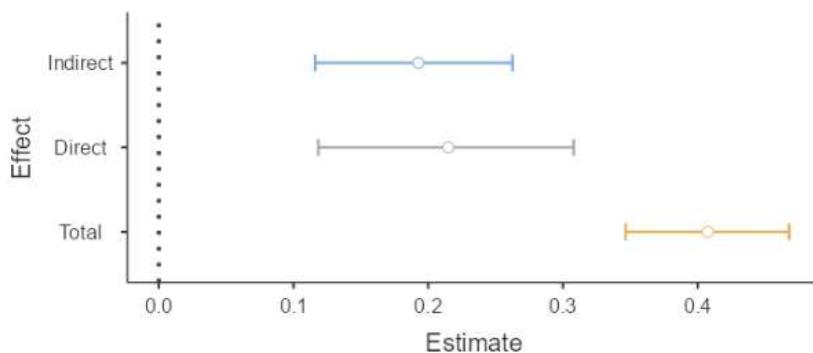


Figure 2. Estimate Plot

We developed a third hypothesis to examine the moderating role of conflict management in the relationship between respondents' human resource management and effective school management. After collecting the data, we analyzed it using moderation analysis with a bootstrap sample of 1,000 and a 95% confidence interval. The results are shown in **Table 4**.

Hypothesis 3: Professional development programs positively affect the integration of conflict, record, and resource management strategies in school leadership.

Table 5. Moderation estimates

Variables	B	SE	95 % Confidence Interval		Z	P
			Lower	Upper		
Human resource management (HRM)	.30	.03	.233	.369	8.60	< .001
Conflict management (CM)	.42	.07	.280	.566	5.63	< .001
HRM*CM	-.01	.01	-.014	.001	-1.56	.118

Table 5 provides the analysis for H2. The analysis reveals that HRM ($B = .30$, $SE = .03$, $Z = 8.60$, $p < .001$) significantly predicts school heads' effective school management, with a 95% confidence interval between 0.233 and 0.369, suggesting a robust positive relationship. Similarly, conflict management ($B = .42$, $SE = .07$, $Z = 5.63$, $p < .001$) also showed a significant positive effect, with its confidence interval (0.280 to 0.566) indicating a substantial contribution to effective school management. However, their interaction term (HRM*CM) ($B = -.01$, $SE = .01$, $Z = -1.56$, $p = .118$) does not reach statistical significance, as indicated by the confidence interval (-.014 to .001) crossing zero. Rejecting H3, our findings highlight that the interaction between HRM and CM does not significantly moderate their combined influence on participants' effective school management. A graphical representation of the moderation analysis is presented in **Figure 3**.

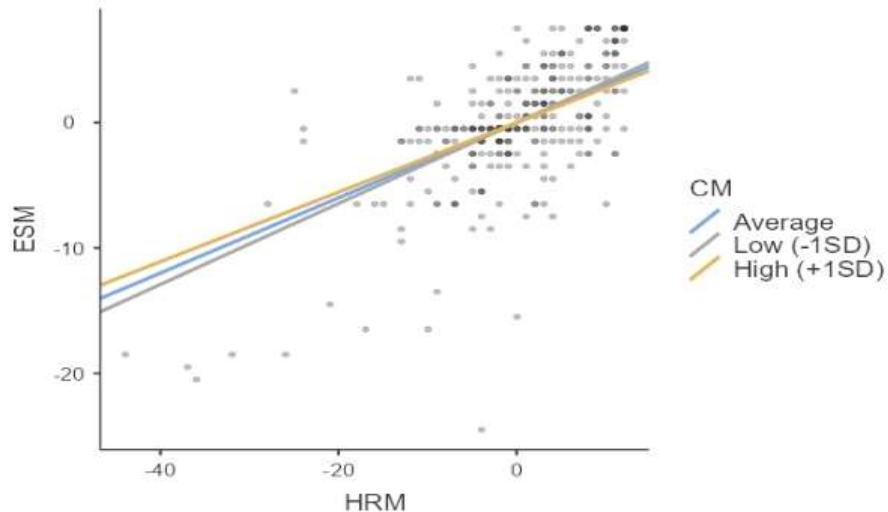


Figure 3. Simple Slope Plot

Hypothesis 4: Conflict management moderates the relationship between resource management and school leadership effectiveness

Contrary to our expectations, our analysis did not support this hypothesis. Although both conflict management ($\beta = 0.42$, $p < .001$) and resource management ($\beta = 0.30$, $p < .001$) independently predicted leadership effectiveness, their interaction term was not statistically significant ($\beta = -0.01$, $p = .118$).

Diagnostic tests for regression models indicated variance inflation factors (VIFs) below 2.5 for all predictors, suggesting no concerns about multicollinearity. Residual analysis showed normally distributed errors with no influential outliers (Cook's distance < 1.0), supporting the robustness of the regression findings.

5. Discussion

Our analysis strongly supports this hypothesis, with conflict management significantly predicting effective school management ($\beta = 0.41$, $p < .001$). This substantial effect suggests that principals who effectively manage conflicts tend to experience better leadership outcomes. This finding asserts that structured conflict resolution strategies create more collaborative educational environments.

The result agrees with theory and past empirical studies. According to conflict management theory, effective dispute resolution leads to conditions in an organization that foster collaboration at work [33]. Conflict management was also found to be robust, as it has a positive impact on educational organizations. In addition, our effect size ($\beta = 0.41$) exceeds the reported average effect ($r = 0.31$), indicating stronger relationships in the Pakistani educational context.

This finding reinforces previous research highlighting the crucial role of human resource management in educational settings. Studies in various educational contexts have consistently shown that effective personnel management is a key determinant of school success [34]. The strong correlation ($r = .69$) between HRM and effective school management aligns with the educational management literature, emphasizing the importance of human capital development [35].

Hypothesis 2 was that record management has a positive impact on decision-making and administrative accountability in schools. The data strongly support this hypothesis, with record management significantly predicting effective school management ($\beta = 0.215$, $p < .001$). Furthermore, our mediation analysis revealed

that record management serves as a significant mediating mechanism between conflict management and leadership outcomes, accounting for 47% of the relationship between these variables. This finding extends previous work on the importance of systematic record-keeping^[36] for educational administration. The study findings further extend the similar relationships across different educational contexts. However, what makes our study special is that we have contextualized this relationship in the context of Punjab's education, whereby the technological infrastructure is starkly different in urban and rural settings. Despite these contextual challenges, the results were significant, indicating the critical importance of record management across all types of educational settings.

This finding has significant practical implications for school administrators in Punjab. Effective record-keeping enables evidence-based decision-making, enhances accountability, and facilitates the resolution of disputes through documented procedures and outcomes. In resource-constrained environments typical of many Punjab schools, systematic record management allows leaders to optimize resource allocation based on accurate data rather than subjective impressions.

Therefore, training programs should emphasize both technical skills (digital record systems, data organization) and analytical skills (data interpretation, evidence-based decision-making) to enhance this critical management function.

Our mediation analysis confirmed this hypothesis, with record management showing a significant indirect effect ($\beta = 0.193$, $p < .001$) on the relationship between conflict management and effective school management. This finding suggests that conflict resolution strategies work, in part, through improved documentation and information management, thereby enhancing the outcomes of leadership.

This partial mediation effect aligns with theoretical frameworks that position record management as an organizational mechanism that connects management practices to outcomes. This finding is extended by demonstrating not only an association but also a specific mediating pathway. In practical terms, this suggests that conflict management enhances leadership effectiveness, both directly and indirectly, through improved record-keeping practices.

Practically, this means that conflict resolution in educational settings becomes more effective when it is supported by systematic record-keeping. Documented procedures, clear communication protocols, and accurate tracking of incidents and resolutions enhance transparency and fairness in conflict resolution. This integrated approach is particularly valuable in Punjab's educational system, where accountability structures often require documented evidence of administrative processes and procedures.

This unexpected finding contrasts with some theoretical predictions in the educational management literature, which suggest synergistic effects between different management competencies^[37]. However, it aligns with research that conceptualizes various management functions as distinct contributors to organizational effectiveness^[38].

Conflict management moderates the relationship between resource management and school leadership effectiveness. Contrary to our expectations, our analysis did not support this hypothesis. Although both conflict management ($\beta = 0.42$, $p < .001$) and resource management ($\beta = 0.30$, $p < .001$) independently predicted leadership effectiveness, their interaction term was not statistically significant ($\beta = -0.01$, $p = .118$). This unexpected finding suggests that these management functions contribute independently rather than synergistically to school leadership effectiveness. In practical terms, this suggests that educational managers must develop competencies in both domains; however, they appear to operate through separate rather than interactive mechanisms. This challenges our initial theoretical assumption that conflict management enhances the effectiveness of resource allocation decisions.

For educational training programs, this finding suggests that conflict and resource management should be developed as distinct competencies rather than as integrated modules. However, both remain essential components of effective school leadership in the educational context of Punjab. These findings have several important implications for educational leadership and management. First, they emphasize the necessity of developing strong human resource management capabilities among school heads, supporting previous research on professional development needs in educational leadership. Second, the mediating role of record management illustrates the effectiveness of systematic documentation and information management in educational settings. Existing knowledge on the influence of management practices on organizational outcomes [39]. Third, we find that while conflict management skills are crucial for school leaders, the relationship between these skills and other management practices may be more complex than previously assumed. We find that conflict management skills are crucial for effective school management, and this finding holds independently, in that conflict management skills do not amplify or dampen the effect of human resource management practices.

These results contribute to our theoretical understanding of school management, showing that the variation in different management functions is interrelated and that they are unique and additive. The findings particularly enhance our understanding of the functioning of alternative management practices in the context of secondary schools in Punjab province and contribute to the growing literature on educational management in developing educational systems.

6. Conclusion

The study findings reveal several important insights that contribute to both theoretical understanding and practical approaches to educational management. First, human resource management emerged as a key determinant of effective school management, explaining 47% of the variance in leadership effectiveness. This strong relationship underscores the critical importance of developing effective human resource management capabilities in educational leadership. Second, our analysis confirmed the significant mediating role of record management, which accounted for 47% of the total effect between human resource management and effective school management. This finding highlights the importance of systematic documentation and information management as connecting mechanisms between management practices and leadership results. Third, contrary to our theoretical prediction, conflict management did not significantly moderate the relationship between resource management and school leadership effectiveness. Instead, these management functions appear to contribute independently to leadership outcomes, suggesting that they operate through parallel rather than interactive pathways. Effective school management requires the integration of diverse management competencies that collectively foster a productive educational environment. Our research demonstrates that conflict management, record keeping, and resource allocation each contribute significantly to leadership effectiveness, although through more complex pathways than previously understood. By fostering these integrated competencies, educational leaders have better tools to successfully manage the administrative challenges of contemporary schools and create conditions for educational excellence.

7. Implications

7.1. Theoretical contribution

While the individual domains examined, conflict management, record management, and resource management, are well established in the educational leadership literature, their specific interrelationships and the observed absence of moderation effects represent incremental yet meaningful refinements to existing

theory. By demonstrating that these competencies contribute independently rather than synergistically, this study challenges prevailing assumptions within integrated leadership models and calls for a nuanced approach to capacity-building frameworks.

This study advances the educational management theory in several ways. By examining the interplay between previously isolated management domains, we contribute to a more integrated understanding of the concept of educational leadership. The significant mediating role of record management in the relationship between conflict management and leadership effectiveness represents a novel finding that extends the previous theoretical models. Our results challenge the assumptions about the synergistic relationship between conflict management and resource allocation, suggesting a more complex relationship than previously theorized. This finding invites a reconsideration of how different management functions interact within educational leadership contexts, particularly in the development of educational systems.

Our findings contribute to educational management theory by demonstrating the connections and distinctions between different management domains. The significant mediating role of record management suggests that information systems serve as crucial connective tissues between conflict resolution practices and leadership outcomes. This extends the existing theoretical frameworks by specifying the mechanism through which different management functions interact.

However, the absence of moderation effects suggests more complex relationships than those previously theorized. Rather than functioning synergistically, conflict management and resource allocation appear to contribute independently to the effectiveness of leadership. This finding challenges assumptions about management integration and suggests that educational leaders must develop competencies across multiple domains without necessarily expecting multiplicative effects between them.

These insights contribute to emerging perspectives on educational leadership that emphasize the integration and differentiation of management functions. Our findings align with ^[13] integrated leadership framework while adding nuance to the specific pathways and relationships between management domains. The results extend the theoretical understanding of how management practices operate in resource-constrained educational environments, which are typical of developing contexts.

7.2. Global implications for educational leadership development

Our findings have significant implications beyond Punjab's educational context. Recent cross-cultural research indicates that leadership effectiveness varies across cultural contexts, with collectivist cultures exhibiting more pronounced effects than individualistic cultures ^[2]. This suggests that our findings may be particularly relevant for other developing countries with similar cultural and institutional contexts.

Virtual professional development programs focusing on conflict management have demonstrated significant effectiveness in enhancing school leaders' knowledge and shifting their attitudes from negative to positive perceptions regarding conflict. This supports our emphasis on conflict management training while highlighting the potential for technology-mediated capacity building in resource-constrained environments.

7.3. Digital age implications

Digital transformation trends in education for 2025 emphasize personalized learning, adaptive systems, and data-driven decision making. Our findings regarding record management as a mediating mechanism align with these trends, suggesting that systematic data management practices will become increasingly crucial for effective educational leadership.

7.4. For international development organizations

Given that only 3% of humanitarian aid goes to education. However, children who most need a good education are at the most significant risk of disruption (World Bank, 2024). Our findings suggest that capacity-building programs should prioritize systematic record management as a foundation for effective conflict resolution and resource allocation.

7.5. For cross-national policy transfer

South Asian countries face similar educational challenges, with education spending ranging from 1% to 4% of GDP, which is below the UNESCO target of 6% for developing countries. Our integrated management approach offers a cost-effective strategy for improving leadership effectiveness across multiple management domains simultaneously.

7.6. For digital education initiatives

Digital transformation budgets can be challenging in higher education because many leaders do not fully grasp the value of digitization. Our evidence for the mediating role of record management provides empirical justification for investing in data management systems as a foundation for improved leadership effectiveness.

Conflict of interest

The authors declare no conflict of interest

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