

Examining the Influence of Edupreneurial Leadership on School Culture: A Multi-Stakeholder Perspective from Secondary Schools in Bihar

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Abstract

Despite increasing interest in entrepreneurial approaches to school leadership, few empirical studies have examined how edupreneurial leadership shapes school culture in resource-constrained contexts. Recognising this, the present study was undertaken to empirically examine how seven entrepreneurial competencies in school leaders (strategic thinking, innovativeness, risk-taking ability, emotional intelligence, community engagement, data-informed decision-making, and technological competence) shape five dimensions of school culture (mission and vision, school environment, academic environment, equity and inclusivity, and communication) in Bihar's secondary schools,

with implications for similar contexts worldwide. A quantitative cross-sectional design was adopted, employing a multi-stage sampling strategy to collect survey data from 2,209 stakeholders (412 school leaders, 717 teachers/staff, and 1,080 students) across 210 secondary schools in 16 districts of Bihar. Data were collected using researcher-developed and validated scales for Edupreneurial Leadership (ELS) and School Culture (SCAS) which were then analyzed via correlation and multiple regression to determine the influence of edupreneurial leadership on the various dimensions of school culture. The findings indicate a positive and significant effect of edupreneurial leadership on school culture, with specific competencies shaping distinct cultural outcomes. Strategic Thinking (ST) emerged as the strongest predictor of Mission & Vision, while Emotional Intelligence (EI) had the greatest impact on School Environment. Risk-Taking Ability (RTA) had the greatest impact on Academic Environment, and Data-Informed Decision-Making (DIDM) was most influential for Equity & Inclusivity. Technological Competence (TC) showed a notable effect on Communication. Collectively, these competencies accounted for between 22% and 35% of the variance in school culture dimensions. By providing large-scale empirical evidence from a resource-constrained region, this research fills a critical gap in the global literature on edupreneurial leadership and school culture. Theoretically, it extends entrepreneurial leadership models to under-resourced secondary schools; practically, it informs policymakers and practitioners worldwide that capacity-building programs for education leaders focused on strategic planning, data literacy, and emotional intelligence can create mission-driven, inclusive, and innovative school environments in diverse contexts.

Keywords: Edupreneurial leadership, Entrepreneurial leadership competencies, School culture, educational leadership, School leadership.

Introduction

Entrepreneurship has traditionally been associated with economic development, job creation, and market innovation. However, in recent decades, its scope has broadened into social and educational domains. Hjorth and Steyaert (2007) describe entrepreneurship as a form of social creativity that emerges in various societal contexts. Supporting this view, Steyaert and Hjorth (2003) argue that seeing entrepreneurship only from an economic point of view limits its true potential, as it also involves social, cultural, environmental, and political aspects. Steyaert and Katz (2004) add that entrepreneurship takes place in many social settings such as communities, schools, and civil society and goes beyond the traditional limits of the market system. This paradigm shift has led to the integration of entrepreneurial principles within education, giving rise to the notion of entrepreneurship in education. Schools are increasingly recognized as arenas of innovation, adaptation, and systemic transformation. The growing complexity of educational systems marked by increased accountability, resource limitations, and

performance pressures necessitates the emergence of entrepreneurial leadership among school principals and administrators (Eyal & Kark, 2004; Park, 2012). Entrepreneurial leadership is characterized by the ability to drive innovation, identify latent opportunities, and enhance organizational performance (Renko et al., 2015; Bagheri & Pihie, 2011). It offers a strategic approach to educational leadership that is dynamic, future-oriented, and responsive to evolving challenges. In this context, Tait and Faulkner (2016) introduced the term Edupreneur, a fusion of "educator" and "entrepreneur," to describe educational leaders who harness entrepreneurial thinking to innovate within schools, overcome constraints, and foster systemic change. Edupreneurs are visionaries who creatively reorganize existing resources, nurture a culture of innovation, and improve institutional effectiveness (Maruntelu, 2023). They exhibit behaviors such as risk-taking, proactivity, creativity, and passion traits that enable them to navigate uncertain environments and inspire others (Gupta et al., 2004; Renko et al., 2015). School leaders with edupreneurial traits are better equipped to address multifaceted challenges (e.g., funding deficits, high student-teacher ratios, bureaucratic inefficiencies) and play a critical role in shaping school culture a key determinant of institutional success.

As Uzokurt et al. (2013) suggest, organizational culture and innovation are central to performance; in educational settings, a supportive school culture enhances teacher development, student outcomes, and overall transformation (Stoll, 1999; Creemers, 2002). Kabler (2013) affirm that cultures characterized by collaboration, collegiality, and creativity promote teacher leadership and innovation, ultimately contributing to better learning environments and outcomes. Entrepreneurial leadership in schools encompasses core behaviors such as innovativeness, proactiveness, risk-taking, vision, motivation, and passion (Bagheri & Pihie, 2011; Gupta et al., 2004; Pihie et al., 2014). Principals displaying these behaviors can proactively address systemic issues, initiate reforms, and galvanize stakeholders around a shared vision. For example, innovativeness allows leaders to design novel pedagogical strategies and internal processes, while proactivity and risk-taking empower them to anticipate challenges and craft preventive solutions. Moreover, motivated and visionary leaders are more likely to gain teachers' and staff's support, facilitating successful implementation of change initiatives (Baltaci 2017; Xaba & Malindi, 2009).

In India, and particularly in Bihar, the concept of edupreneurial leadership has received minimal scholarly attention. While the international literature has examined entrepreneurial leadership across various domains (business, higher education, and policy), research on its application in secondary schools remains sparse (Sjovoll &

Pedersen, 2014; Hamzah et al., 2009; Eyal & Inbar, 2003). In the Indian context, most studies focus on administrative leadership or teacher quality, with little emphasis on how school principals embody entrepreneurial behaviors to navigate institutional challenges. Furthermore, the multidimensional nature of edupreneurial leadership encompassing emotional intelligence, strategic thinking, creativity, and risk-taking remains underexplored in empirical literature. This gap becomes more pronounced when considering the unique socio-educational landscape of Bihar. As one of India's most populous yet educationally challenged states, Bihar is home to over 10 crore people, with nearly 89 percent residing in rural areas. Despite more than 94,000 schools serving over 2 crore students, the state faces persistent issues: poor infrastructure, low literacy rates, teacher shortages, and gender disparities in educational leadership. While public schools dominate, private and CBSE-affiliated institutions are slowly emerging as influential players. In such a complex environment, school leaders must manage limited resources, comply with bureaucratic regulations, and simultaneously innovate to overcome quality-improvement challenges that call for edupreneurial leadership. Against this backdrop, the present study seeks to examine how edupreneurial leadership influences school culture in Bihar's secondary schools. By generating context-specific evidence from Bihar's school system, the study aims to advance both theoretical understanding and practical implications for educational policy, leadership development, and institutional reform in similar socio-cultural contexts.

Edupreneurial Leadership

Edupreneurial leadership, a blend of education and entrepreneurship, is a modern concept that integrates innovative and entrepreneurial skills into educational management and leadership (Balasi, 2023). While edupreneurial and entrepreneurial leadership share a common entrepreneurial spirit, their contexts, goals, and impacts differ significantly. Entrepreneurial leadership is rooted in the business world, whereas edupreneurial leadership is dedicated to the educational sector, focusing on enhancing learning and educational outcomes (Berkovich & Bogler, 2019). Pashiardis & Brauckmann (2022) describes edupreneurial leadership as a form of business leadership within the education sector. According to Balasi (2023), edupreneurial leadership combines the entrepreneurial leadership style, which influences the external environment, with the pedagogical style, which focuses on internal educational processes. This dual approach enables leaders to adapt to external changes while optimizing the learning experience within educational institutions. An edupreneurial leader is an educator who possesses an entrepreneurial mindset, which includes values, assumptions, and knowledge used to process

information, inform decisions, and guide behavior all with the goal of innovating and improving educational practices (Larey, 2024). Hallinger (2016) defines edupreneurial leadership as a concept that synthesizes educational leadership with entrepreneurial principles, emphasizing innovation, adaptability, and proactive problem-solving in educational settings. Pashiardis & Brauckmann (2018) describes edupreneurial leadership as applying entrepreneurial principles in educational contexts to foster innovation and improve student outcomes, which involves taking calculated risks, thinking creatively, and implementing new strategies. Similarly, Lozano (2024) characterizes edupreneurial leadership as identifying and seizing opportunities for improvement and growth within educational institutions, emphasizing a forward-thinking mindset and strategic vision.

Edupreneurial leadership is grounded in two distinct leadership dimensions. The first dimension, the entrepreneurial style, refers to the external leadership behavior of school leaders, aiming to increase external involvement and build coalitions with the outside environment. This external leadership aspect includes promoting networking relationships with the local community and involving parents in school activities. A key facet of this model is acquiring and utilizing available resources to ensure the school functions effectively, enabling students to excel. The second dimension, internal leadership, involves professional actions that create a safe and supportive environment for learners and teachers, fostering a conducive atmosphere for teaching and learning (Pashiardis & Brauckmann, 2018, 2022). The strength of edupreneurial leadership lies in its ability to blend entrepreneurial and educational leadership to rejuvenate school development processes. By building a community of shared responsibility between internal and external stakeholders, edupreneurial leadership enhances the effectiveness of schools in dynamic and changing environments (Pashiardis & Brauckmann, 2018, 2022; Stavrou & Kafa, 2024).

School Culture

The word *culture* is derived from the Latin word *colere*, meaning to cultivate, grow, or tend (Smith et al., 2018). Culture encompasses all products, institutions, customs, traditions, attitudes, and behaviors that emerge from the interactions among individuals in a society. In other words, culture represents all shared beliefs and purposes (Bayar & Karaduman, 2021). Schools, as social institutions, function as organized communities comprising students, teachers, administrators, and other staff, working collaboratively towards the goal of education (Sadovnik, 2007). Each school fosters its own distinctive organization, atmosphere, and values that together form a unique school culture. The concept of school culture is deeply rooted in educational sociology. Waller (1932)

proposed that every school possesses a unique culture shaped by rituals, norms, and moral codes that influence behavior and interpersonal relationships. According to Peterson and Deal (1998), culture comprises norms, values, beliefs, traditions, and rituals built over time. It evolves through the interactions and reflections of individuals and varies across institutions based on people, environment, historical, political, and economic factors (Finnan, 2000). School culture contributes not only to the internal dynamics of a school but also to the broader social system, serving as an indicator of institutional quality and efficiency (Deal & Peterson, 2009).

The elements of school culture such as leadership, relationships, rituals, curriculum, school design, and interactions with parents and community directly influence school functioning and goal realization (Fullan, 2000). These cultural elements shape student achievement, discipline, staff relationships, and openness to change (Hinde, 2005). Çelikten (2006) defines school culture as the values and practices shared by all school members. Hollins (1996) adds that school structures reflect societal cultural values, with rituals like lining up, using bells for transitions, and implementing reward systems being common (Miller, 1988; Goodlad, 1984). School culture also includes informal networks where roles like value-keepers, storytellers, and culture-bearers play a key role in preserving traditions and guiding new staff (Peterson, 2002). As Balci (2011) asserts, traditions, knowledge sharing, and communication among members foster cultural continuity. These are further shaped by the behaviors and attitudes of school leaders, teachers, students, and support staff. Tagiuri's (1968) foundational framework distinguished school culture from school climate by identifying culture as shared meaning systems, separate from ecological, demographic, and structural variables. He laid the groundwork for understanding culture as dynamic and deeply embedded in institutional life (Grunert & Whitaker, 2015). The typology of school culture has been extensively studied. Hargreaves (1995) categorized four types traditional, welfarist, hothouse, and anomic based on social control and cohesion. Stoll and Fink (1996) proposed five types moving, cruising, strolling, struggling, and sinking based on effectiveness and capacity for improvement. Broadly, cultures are labeled as positive or negative. Positive cultures promote shared vision, trust, collaboration, and achievement, whereas negative cultures are marked by passivity, poor communication, and resistance to change (Peterson & Deal, 2002; Markić, 2014). Thus, school culture embodies the intricate interplay of beliefs, values, customs, language, expectations, and behaviors that characterize a school's inner life. It influences and reflects all aspects of educational functioning and significantly affects students' and teachers' experiences.

Edupreneurial Leadership and School Culture

The link between edupreneurial leadership and school culture has been widely explored in educational research. Edupreneurial leadership integrates transformational, distributive, and servant leadership models, fostering innovation, organizational learning, and effective change management (Pashiardis & Brauckmann, 2018). This leadership approach enables school principals to act as edupreneurs, driving school transformation and adapting to the challenges posed by neoliberal policies (Larey, 2024). By emphasizing entrepreneurial leadership practices, school leaders can cultivate an entrepreneurial culture within schools, characterized by innovation, creativity, and continuous improvement (Meung, 2023).

School culture, shaped significantly by leadership practices, plays a critical role in student outcomes and institutional effectiveness (Kwan & Wong, 2020; Louis & Wahlstrom, 2011). Transformational leadership has been found to positively impact school culture by enhancing motivation, collaboration, and engagement among staff (Turan, 2013). Furthermore, instructional leadership develops a positive school culture by promoting shared assumptions, vision, values, and beliefs (Roby, 2011). Principals who adopt participative leadership strategies contribute to the development of a school culture that drives academic success (Ridho et al., 2018). Entrepreneurial leadership behaviors among school administrators further support the development of an adaptive and innovative organizational culture (Helvaci & Ozkaya, 2020). Leaders who prioritize collaboration, trust, and shared vision enhance teacher empowerment and encourage entrepreneurial behavior within schools (Maxwell et al., 2021; Lucas & Valentine, 2002; Liggett, 2020). Additionally, principals who embrace an instructional leadership style can significantly shape school culture by fostering professional learning communities and reinforcing positive organizational norms (Qodiriyah, 2023; Sahin, 2011). Transformational leadership, in particular, has been recognized for its role in shaping a positive school culture by increasing teacher motivation, well-being, and job satisfaction (Permana & Yuslimah, 2025; Heenan et al. 2023). This leadership approach also enhances school climate, professionalism, and intergenerational collaboration among teachers and students (Toprak et al. 2023; Sasan et al., 2023). Additionally, values-based management and structured bureaucratic practices further strengthen leadership culture and teacher engagement in schools (Demirtaş & Ekmekyapar, 2012; Parlar, 2017). Research suggests that entrepreneurial leadership can also promote inclusivity in education, benefiting students with special needs (Stavrou & Kafa, 2023). Overall,

edupreneurial leadership is crucial in shaping school culture by promoting innovation, leadership capacity, and collaboration among teachers and students. As transformational and entrepreneurial leaders, principals influence both the structural and strategic aspects of school culture, ultimately leading to enhanced motivation, engagement, and educational excellence (Sasan et al., 2023). By fostering a strong school culture, educational leaders create an environment that promotes student achievement, institutional success, and long-term sustainability in the education sector (Dinsdale, 2017; Leithwood et al., 2004; Louis, 2011).

Theoretical Framework

This study is grounded in a multidisciplinary theoretical framework integrating Transformational Leadership Theory (Burns, 1978), Organizational Culture Theory (Schein, 1985; Hofstede, 1991), Social Learning Theory (Bandura, 1977), and Diffusion of Innovation Theory (Rogers, 2003) to elucidate how edupreneurial leadership competencies shape school culture. Transformational Leadership Theory posits that effective leaders inspire and motivate followers by articulating a compelling vision, fostering creativity, and stimulating intellectual growth, thereby enabling edupreneurial leaders to cultivate a shared mission and drive continuous improvement. Organizational Culture Theory emphasizes the influence of shared values, beliefs, and norms in guiding institutional behaviors, suggesting that edupreneurial leadership cultivates an entrepreneurial school culture by promoting risk-taking, innovation, and a growth mindset that underpins creativity, inclusivity, and collaboration. Social Learning Theory highlights the process of learning through observation and imitation, wherein edupreneurial leaders serve as role models demonstrating resilience, adaptability, and proactivity, thus facilitating the dissemination of an entrepreneurial mindset across the school community. Diffusion of Innovation Theory explains how new ideas and practices propagate within social systems, with edupreneurial leaders acting as change agents who facilitate the adoption of innovative approaches that transform school culture toward enhanced adaptability and effectiveness.

Research Objectives:

The main objective of this study is as follow:

To examine the influence of edupreneurial leadership on the school culture in Bihar's secondary schools.

Research Hypotheses

H₁1: Edupreneurial leadership significantly influences the school culture of secondary schools in Bihar.

H₁ 2: Edupreneurial leadership significantly predicting the mission and vision of secondary schools in Bihar.

H₁ 3: Edupreneurial leadership significantly predicting the school environment in Bihar's secondary schools.

H₁ 4: Edupreneurial leadership significantly predicting the academic environment of Bihar's secondary schools.

H₁5: Edupreneurial leadership significantly predicting equity and inclusivity practices in Bihar's secondary schools.

H₁6: Edupreneurial leadership significantly predicting communication processes within Bihar's secondary schools.

Methodology

A correlational descriptive survey research approach was employed in the study as the research aimed to examine relationships between variables through statistical techniques such as correlation and multiple regression analysis.

Participants and Sample

Participants in the study comprised 2,209 respondents, including school leaders, teachers, staff, and students from secondary schools across 16 districts of Bihar, India. The sample included 412 school leaders (principals and administrators), 717 teachers and staff, and 1,080 students from classes 9 to 12. The sample was selected using a multi-stage sampling technique. In the first stage, all 9 divisions of Bihar were included using census sampling, ensuring that every division is considered in the study. In the second stage, 1-2 districts from each division (totaling 16 districts) are selected through purposive sampling, based on the criterion of having the highest number of secondary and higher secondary schools (Department of School Education & Literacy, 2024). At the third stage, 10-15 schools from each selected district (totaling 210 schools) were chosen using random sampling, ensuring an unbiased selection of schools. Finally, in the fourth stage, participants within the selected schools are chosen through simple random sampling. The diverse representation across districts ensured inclusivity and enhanced the

generalizability of the findings to the wider secondary school context in Bihar. The diverse district-wise representation enhanced inclusivity, ensured geographic coverage, and reduced sampling bias.

Tools and Data Collection

Due to the lack of comprehensive existing scales for the constructs under study, new scales were developed and validated as part of this research. Based on this review, 11 dimensions of Edupreneurial Leadership and 8 dimensions of School Culture were identified. Subsequently, an item pool was generated 63 items for Edupreneurial Leadership and 56 for School Culture. These items were refined through expert evaluation using the Delphi technique, involving a panel of eight experts (three higher education academicians, three school teachers, and two school principals). After multiple rounds of feedback, the item pools were reduced to 39 items for Edupreneurial Leadership and 43 for School Culture.

Exploratory Factor Analysis (EFA) conducted using Principal Component Analysis with varimax rotation, retained items with communalities of 0.50 or higher. The finalized tools revealed 7 distinct factors for Edupreneurial Leadership and 5 for School Culture, establishing strong construct validity within the Indian senior secondary school context. All items were measured using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Reliability of the Edupreneurial Leadership Scale (ELS) and School Culture Assessment Scale (SCAS) was assessed using Cronbach's Alpha and Composite Reliability (CR). All constructs demonstrated acceptable to high reliability, with Cronbach's alpha values ranging from 0.751 to 0.865, indicating good internal consistency. CR values for all constructs were above the recommended threshold of 0.70, confirming scale reliability.

Results and Interpretation

The collected data were analysed using the statistical Packages for the Social Sciences (SPSS) version 22. To fulfill the objective of the study “to examine the influence of edupreneurial leadership on the school culture in Bihar's secondary schools” dimension wise correlation analysis was done.

Correlation Analysis

A correlation matrix was used to verify the existence of relationships between the Edupreneurial Leadership (independent variable) and the School Culture (dependent variable). Since the correlation coefficient only indicates the strength and direction of the relationship between variables, regression analysis was conducted to quantify the effect of each dimension (Cohen et al., 2002).

H₀1: Edupreneurial leadership is not significantly influences the school culture of secondary schools in Bihar.

Table 1: Pearson's Correlation Matrix between Dimensions of Edupreneurial Leadership and Dimensions of School Culture

Edupreneurial Leadership Dimensions	School Culture Dimensions				
	Mission and Vision (MV)	School Environment (SE)	Academic Environment (AE)	Equity and Inclusivity (EAI)	Communication (COM)
Strategic Thinking (ST)	.345**	.240**	.278**	.095	.374**
Innovativeness (INV)	.084	-.067	.119*	.178**	.048
Risk-Taking Ability (RTA)	.263**	.017	-.066	-.147*	.359**
Emotional Intelligence (EI)	-.077	.308**	-.052	-.120*	.364**
Community Engagement (CE)	-.109	-.040	-.072	.333**	.169**
Data-Informed Decision Making (DIDM)	.205**	.196**	.236**	.239**	.194**
Technology Competence (TC)	.226**	.221**	.365**	.154**	-.101

** Correlation is significant at the 0.01 level (2-tailed) * Correlation is significant at the 0.05 level (2-tailed)

Interpretation: The Pearson correlation matrix reveals several significant relationships between Edupreneurial Leadership dimensions and School Culture dimensions. Strategic Thinking (ST) is positively associated with Mission and Vision (MV), School Environment (SE), Academic Environment (AE), and Communication (COM). Innovation (INV) shows a weak positive correlation with Academic Environment (AE) and a stronger positive correlation with Equity and Inclusivity (EAI). Risk-Taking Ability (RTA) correlates positively with Mission and Vision (MV) and Communication (COM),

but negatively with Equity and Inclusivity (EAI). Emotional Intelligence (EI) positively correlates with School Environment (SE) and Communication (COM), but has a negative relationship with Equity and Inclusivity (EAI). Community Engagement (CE) shows a positive correlation with Equity and Inclusivity (EAI), reflecting the importance of community involvement in promoting inclusive practices. Data-Informed Decision Making (DIDM) is positively related to Mission and Vision (MV), School Environment (SE), Academic Environment (AE), and Equity and Inclusivity (EAI). Finally, Technology Competence (TC) is positively correlated with Mission and Vision (MV), School Environment (SE), Academic Environment (AE), and Equity and Inclusivity (EAI).

Regression Analysis of Edupreneurial Leadership and School Culture

In order to determine the influence of Edupreneurial Leadership on School Culture a multiple regression analysis was performed taking into account each dimension of both constructs.

H₀₂: Edupreneurial leadership is not significantly predicting the mission and vision of secondary schools in Bihar

Table 2: Regression Summary – Edupreneurial Leadership predicting School Mission and Vision

Predictor	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.329	.229		18.902	.000
ST	.226	.058	.345	3.897	.000
INV	.075	.048	.084	1.563	.119
RTA	.215	.052	.263	4.135	.000
EI	-.062	.043	-.077	-1.442	.150
CE	-.057	.029	-.109	-1.966	.050
DIDM	.122	.032	.205	3.813	.000
TC	.179	.026	.226	6.885	.000
Model Fit	R = .405, R ² = .164, Adjusted R ² = .150, Std. Error = .34638, Durbin-Watson = 2.073, F (7, 404) = 11.333, p < .001				

a. Dependent Variable: MV

Interpretation: A multiple regression analysis examined the influence of Edupreneurial Leadership on Mission and Vision (MV). The model showed a moderate positive relationship (R = .405) and explained 16.4% of the variance (R² = .164). The model was

statistically significant, $F(7, 404) = 11.333$, $p < .001$, with a Durbin-Watson value of 2.073 indicating no significant autocorrelation. Significant positive predictors included Strategic Thinking (ST) ($\beta = .345$, $p < .001$), Risk-Taking Ability (RTA) ($\beta = .263$, $p < .001$), Data-Informed Decision-Making (DIDM) ($\beta = .205$, $p = .000$), and Technological Competence (TC) ($\beta = .226$, $p < .001$). Innovation (INV) and Emotional Intelligence (EI) had positive and negative effects, respectively, but were not statistically significant ($p = .119$, $p = .150$). Community Engagement (CE) showed a borderline significance ($p = .050$).

H₀ 3: Edupreneurial leadership is not significantly predicting the school environment in Bihar's secondary schools.

Table 3: Regression Summary – Edupreneurial Leadership predicting School Environment

Predictor	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.599	.230		19.995	.000
ST	.210	.066	.240	3.182	.002
INV	-.050	.057	-.067	-.877	.381
RTA	.014	.056	.017	.250	.802
EI	.305	.045	.308	6.778	.000
CE	.021	.030	-.040	.700	.484
DIDM	-.108	.032	.196	-3.375	.001
TC	.094	.028	.221	3.357	.001
Model Fit	R = .561, R ² = .314, Adjusted R ² = .303, Std. Error = .26314, Durbin-Watson = 2.100, F (7, 404) = 3.307, p < .005				

Dependent Variable: SE

Interpretation: A multiple regression analysis examined the influence of Edupreneurial Leadership on School Environment (SE). The model showed a moderate positive relationship ($R = .561$) and explained 31.4% of the variance ($R^2 = .314$). The model was statistically significant, $F(7, 404) = 3.307$, $p = .002$, with a Durbin-Watson value of 2.100 indicating no significant autocorrelation. Significant positive predictors included Strategic Thinking (ST) ($\beta = .240$, $p = .002$), Emotional Intelligence (EI) ($\beta = .308$, $p < .001$), Data-Informed Decision-Making (DIDM) ($\beta = .196$, $p = .001$), and Technological Competence (TC) ($\beta = .221$, $p = .001$). In contrast, Innovation (INV), Community Engagement (CE), and Risk-Taking Ability (RTA) were not statistically significant ($p = .381$, $p = .484$, $p = .802$).

H₀ 4: Edupreneurial leadership is not significantly predicting the academic environment of Bihar's secondary schools.

Table 4: Regression Summary – Edupreneurial Leadership predicting School Academic Environment

Predictor	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.200	.167		25.149	.000
ST	.168	.045	.278	3.733	.000
INV	.067	.035	.119	1.914	.050
RTA	-.041	.038	-.066	-1.079	.281
EI	-.029	.031	-.052	-.935	.350
CE	-.026	.021	-.072	-1.218	.216
DIDM	.096	.023	.236	4.174	.000
TC	.227	.019	.365	11.947	.000
Model Fit	R = .516, R ² = .314, Adjusted R ² = .303, Std. Error = .23145, Durbin-Watson = 2.235, F (7, 404) = 3.910, p < .001				

Dependent Variable: AE

Interpretation: A multiple regression analysis examined the influence of Edupreneurial Leadership on Academic Environment (AE). The model showed a moderate positive relationship ($R = .516$) and explained 31.4% of the variance ($R^2 = .314$). The model was statistically significant, $F(7, 404) = 3.910$, $p = .000$, with a Durbin-Watson value of 2.235 indicating no significant autocorrelation. Significant positive predictors included Technological Competence (TC) ($\beta = .365$, $p = .000$), Data-Informed Decision-Making (DIDM) ($\beta = .236$, $p = .000$), Strategic Thinking (ST) ($\beta = .278$, $p = .000$), and Innovativeness (INV) ($\beta = .119$, $p = .050$). In contrast, Risk-Taking Ability (RTA), Emotional Intelligence (EI), and Community Engagement (CE) were not statistically significant ($p = .281$, $p = .350$, $p = .216$).

H₀5: Edupreneurial leadership is not significantly predicting equity and inclusivity practices in Bihar's secondary schools.

Table 5: Regression Summary – Edupreneurial Leadership predicting School Equity and Inclusivity

Predictor	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.815	.195		19.564	.000
ST	.083	.050	.095	1.660	.098
INV	.126	.040	.178	3.150	.002
RTA	-.115	.044	-.147	-2.614	.009
EI	-.084	.037	-.120	-2.270	.024
CE	.150	.025	.333	6.000	.000
DIDM	.123	.027	.239	4.556	.000
TC	.069	.022	.154	3.136	.002
Model Fit	R = .444, R ² = .198, Adjusted R ² = .184, Std. Error = .29437, Durbin-Watson = 2.618, F (7, 404) = 14.206, p < .001				

Dependent Variable: EI

Interpretation: A multiple regression analysis examined the influence of Edupreneurial Leadership on Equity and Inclusivity (EAI). The model showed a moderate positive relationship ($R = .444$) and explained 19.8% of the variance ($R^2 = .198$). The model was statistically significant, $F(7, 404) = 14.206$, $p = .000$, with a Durbin-Watson value of 2.618 indicating no significant autocorrelation. Significant positive predictors included Community Engagement (CE) ($\beta = .333$, $p = .000$), Data-Informed Decision-Making (DIDM) ($\beta = .239$, $p = .000$), Innovativeness (INV) ($\beta = .178$, $p = .002$), and Technological Competence (TC) ($\beta = .154$, $p = .002$). In contrast, Risk-Taking Ability (RTA) ($\beta = -.147$, $p = .009$) and Emotional Intelligence (EI) ($\beta = -.120$, $p = .024$) were negative predictors, and Strategic Thinking (ST) was not statistically significant ($p = .098$).

H₀6: Edupreneurial leadership is not significantly predicting communication processes within Bihar's secondary schools.

Table 6: Regression Summary – Edupreneurial Leadership predicting School Communication

Predictor	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	4.355	.168		25.923	.000
ST	.148	.041	.374	3.610	.000
INV	.026	.034	.048	.765	.445
RTA	.129	.036	.359	3.583	.000
EI	.118	.033	.364	3.576	.000
CE	.057	.021	.169	2.714	.007
DIDM	.081	.023	.194	3.522	.000
TC	-.038	.019	-.101	-2.000	.052
Model Fit	R = .471, R ² = .222, Adjusted R ² = .209, Std. Error = .25140, Durbin-Watson = 2.333, F (7, 404) = 16.793, p < .001				

Dependent Variable: COM

Interpretation: A multiple regression analysis examined the influence of Edupreneurial Leadership on students' Communication (COM). The model showed a moderate positive relationship ($R = .471$) and explained 22.2% of the variance ($R^2 = .222$). The model was statistically significant, $F(7, 404) = 16.793$, $p = .000$, with a Durbin-Watson value of 2.333 indicating no significant autocorrelation. Significant positive predictors included Strategic Thinking (ST) ($\beta = .374$, $p = .000$), Risk-Taking Ability (RTA) ($\beta = .359$, $p = .000$), Emotional Intelligence (EI) ($\beta = .364$, $p = .000$), Data-Informed Decision-Making (DIDM) ($\beta = .194$, $p = .000$), and Community Engagement (CE) ($\beta = .169$, $p = .007$). In contrast, Innovativeness (INV) ($\beta = .048$, $p = .445$) and Technological Competence (TC) ($\beta = -.101$, $p = .052$) were not statistically significant predictors.

Table 7: Summary of Assessment of Hypotheses related to Edupreneurial Leadership and School Culture

School Culture Dimension	Significant Edupreneurial Leadership Traits (P < 0.05)	Non-Significant Edupreneurial Leadership Traits (P > 0.05)
Mission & Vision	Strategic Thinking, Risk-Taking & Adaptability, Data-Driven Decision-Making, Technological Competence	Innovativeness, Emotional Intelligence, Community Engagement
School Environment	Strategic Thinking, Emotional Intelligence, Data-Driven Decision-Making, Technological Competence	Innovativeness, Risk Taking, Community Engagement
Academic Environment	Strategic Thinking, Innovativeness, Data-Driven Decision-Making, Technological Competence	Risk-Taking, Emotional Intelligence, Community Engagement
Equity and Inclusivity	Community Engagement, Data-Driven Decision-Making, Technological Competence, Innovativeness, Strategic Thinking	Risk-Taking, Emotional Intelligence
Communication	Strategic Thinking, Risk-Taking & Adaptability, Emotional Intelligence, Community Engagement, Data-Driven Decision-Making	Innovativeness, Technological Competence

Note: Significant traits have regression coefficients (B) with p-values less than 0.05; traits with p-values greater than or equal to 0.05 are considered non-significant.

Discussion

Influence of Edupreneurial Leadership on School Culture

Results reveal a significant positive relationship between edupreneurial leadership traits specifically Strategic Thinking, Risk-Taking Ability, Technological Competence, and Data-Informed Decision-Making and Mission and Vision. This indicates that school leaders who exhibit higher levels of these competencies are more likely to effectively shape, articulate, and guide their institution's mission and vision toward long-term success. This aligns with prior research indicating that entrepreneurial leadership supports innovation, organizational learning, and the articulation of shared vision (Meung, 2023). In particular, strategic thinking and risk-taking, core components of edupreneurial leadership, enable school principals to formulate future-oriented strategies and guide the

school towards long-term goals (Larey, 2024 & Roby 2011). Findings suggest that edupreneurial leadership traits specifically Strategic Thinking, Emotional Intelligence, Data-Informed Decision-Making, and Team Collaboration positively influence the quality of the School Environment. This indicates that school leaders who demonstrate higher levels of these competencies are more effective in maintaining facilities, supporting student well-being, and ensuring equal access to resources and services, thereby enhancing overall school effectiveness. This supports existing findings that transformational and participative leadership enhances collaboration, motivation, and staff engagement, thereby improving school climate (Ridho et al., 2018). Leaders who demonstrate emotional intelligence and collaborative competencies promote well-being and equitable resource distribution, which align with evidence showing that positive school environments stem from leadership practices (Qodiriyah, 2023; Maxwell et al., 2021).

Results show that edupreneurial leadership traits specifically Technology Competence, Data-Informed Decision-Making, and Strategic Thinking—positively influence the Academic Environment. School leaders who demonstrate higher levels of these competencies are more effective in enhancing the academic environment, including providing opportunities for career exploration, offering platforms for student leadership, and promoting creative expression. Additionally, such leadership supports the promotion of critical thinking and problem-solving among students, as well as the use of varied teaching methods to cater to diverse learning styles. This is consistent with research showing that entrepreneurial and instructional leadership enhances academic settings by fostering innovation, student leadership, and creative problem-solving (Helvaci & Ozkaya, 2020)

Findings suggest that Community Engagement is the strongest and most significant predictor of Equity and Inclusivity (EAI), indicating that school leaders who actively engage with the community are more effective in promoting an inclusive environment. Leaders who demonstrate traits such as Data-Informed Decision-Making, Innovativeness, and Technological Competence also contribute positively to promoting inclusivity. This confirms research indicating that leaders who prioritize community collaboration promote inclusive educational environments (Stavrou & Kafa, 2023). Entrepreneurial leadership behaviors, such as engaging external stakeholders and utilizing innovative approaches, enhance equity and cater to diverse student needs. This aligns with literature highlighting how community partnerships and inclusive leadership

contribute to building adaptive and collaborative school cultures (Valentine & Lucas, 2002).

Empirical results show that school leaders who demonstrate higher levels of strategic thinking, risk-taking ability, emotional intelligence, data-informed decision-making, and community engagement are more effective in enhancing communication within the school. This aligns with existing evidence suggesting that transformational and entrepreneurial leaders enhance communication by promoting collaboration, trust, and shared vision (Sasan et al., 2023).

Recommendations and Implications for Policymakers

The present study provides key implications and actionable recommendations for enhancing entrepreneurial leadership and student development in senior secondary schools of Bihar. These recommendations are relevant for policymakers, school administrators, and school leaders. Policymakers are urged to develop specialized training programs and promote continuous professional development initiatives aimed at enhancing school leaders' entrepreneurial leadership capacities. There is a critical need to invest in digital infrastructure to support the integration of educational technologies and digital learning across all schools. Additionally, funding innovation through grants and resource support will encourage schools to implement projects that foster entrepreneurship, emotional intelligence, and critical thinking. State-level leadership development programs should be designed with a specific focus on strengthening data-driven decision-making and technological competence. Moreover, policy measures should aim to strengthen school-community collaboration by establishing advisory councils and initiating community engagement programs. School administrators should promote inclusive and effective school environments by organizing regular meetings between leadership, teachers, students, and parents to enhance communication. Developing user-friendly communication platforms—such as mobile apps, online portals, and bulletin boards—will aid in information dissemination and stakeholder engagement. The implementation of effective feedback mechanisms, including surveys and suggestion boxes, is essential for continuous school improvement. Hosting community events like career days and cultural programs can deepen school-community connections. Furthermore, administrators should engage staff and students in updating or drafting the school's mission and vision statements to ensure alignment with entrepreneurial and innovative goals. Establishing recognition systems for teachers and students who contribute to innovation and positive school culture, along with offering training in

educational technologies and data analytics, will further strengthen institutional effectiveness and classroom impact.

School leaders are encouraged to adopt flexible, student-centered learning models that empower students to explore personal interests and take ownership of their learning journey. Fostering student autonomy through decision-making opportunities within academic settings can help build confidence and responsibility. Additionally, integrating real-world problem-solving and critical thinking modules into the curriculum will better equip students with the 21st-century skills necessary for success in higher education and future careers.

Theoretical Contributions of the Study

The present study advances the theoretical understanding of edupreneurial leadership by defining and empirically substantiating seven distinct competencies that collectively promote a positive school culture. First, by identifying competencies such as strategic thinking, innovativeness, risk-taking, emotional intelligence, community engagement, data-informed decision-making, and technological competence, this research extends existing leadership frameworks beyond traditional pedagogical and administrative models. Each competency interrelates with multifaceted dimensions of school culture namely mission and vision, academic environment, equity and inclusivity, communication, providing a clear perspective on leadership impact in resource-constrained settings. Moreover, by placing these competencies within the broader context of transformational leadership theory, the study shows how edupreneurial traits not only support but also increase leaders' ability to bring about organizational transformation deepening our understanding of how entrepreneurial mindsets lead to a stronger organizational culture. Additionally, the study contributes methodologically by developing and validating scales to measure the constructs of entrepreneurial leadership traits and school culture. These scales demonstrate strong reliability and validity across diverse school settings, making them practical for both researchers and practitioners.

Limitations and Future Research Directions

Although the study took all necessary precautions to ensure objectivity, reliability, and validity, certain limitations remain that should be considered when interpreting the findings and their applications. Specifically, its exclusive focus on rural, government-run secondary schools in Bihar limits applicability to urban, private, or specialized educational contexts. Moreover, the cross-sectional design limits the ability to draw

causal inferences and introduces potential common-method bias. Reliance on self-reported data from school leaders and students may have led to response biases, and insufficient sampling from madrasas, residential, and international schools further narrows the study's scope. For future research, it is recommended that studies incorporate more qualitative data alongside quantitative approaches to provide richer and more nuanced insights. Expanding the sample to include a more diverse range of schools, especially urban and private institutions, would help explore variations in edupreneurial leadership competencies across different settings. Additionally, future studies should examine the role of gender in edupreneurial leadership, with a particular focus on female leaders and their influence on school outcomes.

Conclusion

The study established strong empirical relationships between edupreneurial leadership competencies and their role in shaping school culture, in Bihar's secondary schools. Traits such as Strategic Thinking, Emotional Intelligence, Risk-Taking Ability, and Data-Informed Decision-Making consistently emerged as significant predictors of school culture. The results also revealed that school leaders in Bihar exhibit moderate to high levels of edupreneurial leadership, with Strategic Thinking and Innovativeness emerging as their strongest competencies. However, disparities in Community Engagement and Technological Competence point to areas that need targeted professional development and policy support. With regard to school culture, the study found that while elements such as Mission & Vision, School Environment, and Communication are well-established, challenges remain in promoting Equity and Inclusivity. There is a need for planned efforts to create a more inclusive and equitable environment, especially in rural government schools where most of the sampled population is concentrated.

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