P-ISSN 2664-0422	Pakistan Social Sciences Review	March-April 2026, Vol. 10, No.2
O-ISSN 2664-0430	https://doi.org/10.35484/pssr.2026(10-II)03	[31-47]

Pakistan Social Sciences Review
www.pssr.org.pk

RESEARCH PAPER

Transformational Leadership and Human Capital Development: The Mediating Role of Knowledge Sharing Behavior

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ABSTRACT

The current research examines the central role of the concept of transformational leadership in promoting the development of human capital within the higher learning institutions namely universities and colleges in South Punjab, Pakistan, by looking at the mediating role of knowledge sharing behavior. In a dynamic environment where educational and organizational capacity is yet to be matured, it is important to adopt efficient leadership styles to exploit potential of human resource. Based on the Social Exchange Theory and the Knowledge-Based View, the study assumes that inspirational motivation, personalized consideration, and intellectual stimulation by transformational leaders increase the willingness of employees to share both tacit and explicit knowledge, which will help sustain a learning process and grow their competencies needed to drive sustainability in human-capital development. The sample of 200 educational leaders of higher-education institutions and colleges in South Punjab working in the public sector was selected through the use of the structured questionnaire based on time-lagged survey design. Through the use of structural equation modelling (SEM), the research endeavored to examine the hypothesized connections between transformational leadership styles, knowledge-sharing behavior, and developmental results of human capital. The empirical evidence illustrates that knowledge-sharing behavior has been a very important mediator between transformational leadership and human-capital development. As a result, the research will contribute to the body of knowledge in the region by highlighting the role of creating knowledge ecosystems led by leadership as a conclusive approach in empowering the working population in the developing economies. The policy implications indicate that leadership development initiatives and organizational learning cultures can be hugely used to strengthen human capital that may lead to the improvement of the institutional effectiveness and socio-economic development of South Punjab.

KEYWORDS Transformational Leadership, Knowledge Sharing Behavior, Human Capital Development, South Punjab

Introduction

South Punjab is one of the most diverse provinces in Pakistan with a low level of economic development. Despite the rapid growth of the higher-education sector, the institutions in the region still face serious problems, such as faculty turnover, the lack of professional development, and limited funds on research (Government of Pakistan, 2024). This has made the need to have leadership that can help in achieving innovation, collaboration and lifelong learning more than ever before.

Transformation leadership in universities can help create organizational environments where teachers can share knowledge and pursue professional excellence.

Knowledge sharing can equalize the gap in rural and urban academic environments when effectively institutionalized by way of effective leadership sustenance, which would lead to quality pedagogies and research outputs. In line with this, the current research study aims at empirically examining the direct and indirect relationship between transformational leadership, knowledge sharing and human capital development in universities and colleges in South Punjab. This study contributes to the current literature on leadership and knowledge-management in Pakistan and offers practical implications to administrators and policymakers who need to improve the quality of education and promote the development of human capital in educational settings characterized by limited resources.

A key factor in determining regional and national competitiveness in the modern knowledge-driven economy is an organization's ability to generate, maintain, and nurture human capital (Waseem et al. 2025). Limited resources, socioeconomic gaps, and weak institutional infrastructures make it difficult to establish sustainable human capital in developing countries like Pakistan, especially in areas like South Punjab (Sial et al., 2025). Leadership behavior and knowledge sharing techniques have become important levers for human capital development as South Punjabi companies, from SMEs to educational institutions, aim for performance excellence. In a world that has been marked by rapid globalization and competition that is based on knowledge, universities and colleges play a central role in building the human capital of a nation which refers to the sum total of skills and knowledge as well as innovative capacity of the labour force of a nation. In Pakistan, and especially in South Punjab, higher education institutions (HEIs) have emerged as the prominent agents of socio-economic change, and are associated with development of skilled graduates, researchers, and educators. However, many institutions in this area are facing institutional and management issues that limit their ability to develop and nurture talent. It is within these settings that transformational leadership has come into the limelight as a critical managerial strategy, which can stimulate knowledge sharing and human capital development (HC) two processes that are interrelated but which form the basis of institutional performance and long-term competitiveness.

Human capital is now a viable source for identifying sustained competitive advantages for firms, and employee skill and competency development is a necessity for both the firm and the employee. Knowledge-based view firms state that having superior human capital and knowledge is a source of competitive advantage (Grant, 1996). Social exchange theory also suggests that positive (ex. constructive and supportive) leadership will help employee attitude and behavior improve, thus benefiting the organization as a whole (Blau, 1964). Leadership with positive behaviors and knowledge management is vital to the development of human capital.

The heightened interest in transformational leadership has been of great importance, as this form of leadership has the ability to effect change in the organization for the greater good of the organization as a whole. They have the ability to foster change through the vision that they create and guide. Rational thought along with personal connection and encouragement is the other tools of influence that they have. Numerous studies support the theory that constructive leadership is a critical component in employee performance, organizational innovation and the organizational commitment (Li et al, 2019; Qalati et al, 2022). Newer studies go as far as to say that constructive leadership is the precursor to change in the attitudes of employees that will result in proactive attitudes and behavior (Waseem et al, 2025; Sial et al, 2025).

Transformational leadership strongly influences knowledge sharing behavior. Knowledge sharing is sharing various aspects of knowledge like information and experiences. Knowledge sharing is essential in improving the organization's ability. In innovative and collaborative decision making knowledge sharing is essential. Many studies show transformational leadership fosters knowledge sharing. This is through trust, openness, and psychological safety in organizations (Son et al., 2020; Sudibjo & Prameswari, 2021). Recent studies show knowledge sharing as a mediator connecting leadership to innovation and employee development (Bahagia et al., 2024; Saif et al., 2024; Bai, 2025).

Human capital development is the improvement of the employee's knowledge, skills and competencies that aid the development of the organization. Development of leadership and collaborative learning system improves the capability of the employee and the performance of the organization (Islam et al., 2023). It has also been shown that leadership style and practices of knowledge management have a great deal to do with the sustainable innovation as well as the resilience of the organization (Nazir et al., 2025; Khoshnaw & Karadas, 2025). There are no studies to date that have investigated transformational leadership, knowledge sharing behavior, and human capital development all at once.

A growing number of skills are needed to ensure that organizations are able to sustain their performance in the long-run, making the development of valuable human capital an important task facing organizations in the current knowledge-based economy'. There is still exploration to be done on the influence of human capital of an organization, which includes nearly all aspects of the organization, and how important transformational leadership is in developing human capital; specifically, how transformational leadership helps an organization develop and employ the skills and competencies of its employees. Transformational leadership is the type of leadership that motivates and inspires others to perform beyond expectations. While knowledge-sharing behavior has been suggested to play a role in mediating the relationship of interest, the empirical literature is scarce on this within an integrative framework on the role of leadership on sustainable development of employees. There is a gap in the literature on the role of leadership and sustainable development of human resources. As such, this study seeks to examine the knowledge-sharing behavior of employees as a mediator within the context of transformational leadership and human capital development. Although the world is now offering more scrutiny, the empirical studies held in Pakistan especially the South Punjab region are uncommon when it comes to the mediating role of knowledge sharing between transformational leadership and human capital development. The current reading is mostly focused on environmental performance or innovation results (Yousef & Naseer, 2025; Waseem et al., 2025) and, thus, the area of internal employees' competencies is overlooked. To fill this gap, the given study provides a region-specific model that outlines the role of transformational leadership in developing human capital based on knowledge-sharing processes.

Literature Review

The theoretical background of the current study is the Knowledge -Based View (KBV) and the Social Exchange Theory (SET). KBV suggests that knowledge is one of the key strategic resources in terms of competitive advantage (Grant, 1996), whereas SET believes that two-way communication like knowledge sharing depends on trust and relationships between leaders and their members (Blau, 1964). Transformational leadership helps in both theoretical principles of inspiring the followers and fostering

trust-based reciprocity; thus, the model forms the basis of the active exchange of knowledge, which finally leads to the increase in human capital.

Transformational Leadership and Human Capital Development

Characterized by charisma, intellectual stimulation, inspirational motivation, and personalized attention, transformational leadership (TL) is essential for improving employees' learning, flexibility, and creative potential (Hassan & Jehangir, 2025). It has been discovered that transformational leaders in Pakistan foster a culture of trust, learning, and subordinate empowerment, all of which enhance the development of human capital (Ahmad et al., 2025). In South Punjab, where leaders in both public and private companies play a crucial role in closing skill gaps and inspiring staff members toward shared objectives, the relationship between transformational leadership and human capital is particularly pertinent. Yousaf and Naseer (2025) shown that through encouraging supervision and role modeling, transformational leadership has a favorable impact on workers' abilities and professional development.

Enhancing employees' abilities, competencies, and knowledge to increase both individual and organizational productivity is known as human capital development (Khaliq, 2025). The best human capital development results in South Punjab have been hampered by a lack of investment in knowledge and training mechanisms. Nonetheless, studies indicate that leadership practices that foster ongoing education and creativity can overcome systemic limitations (Nazir et al., 2025). Therefore, the development of a learning-oriented culture that facilitates capacity building in environments with limited resources depends heavily on transformational leaders.

The technique includes the process of inspiring and motivating the people following him to overcome the self-interest and pursue the goals of the whole organization in four dimensions: inspirational motivation, idealized influence, intellectual stimulation, and individualized consideration. Transformational leaders in an educational environment (university deans, school principals, and departmental heads, etc.) are mentors who serve faculty and staff in improving their teaching, research and administrative competence (Waseem et al. 2025).

Transformational leadership can serve as an agent of intellectual and skills-based progress in South Punjab where many institutions of higher learning are facing limited opportunities to develop professionally. The visionary and individualized support by the leaders will motivate teachers to further their education, do research, and embrace new pedagogies, thus strengthening institutional human capital (Hassan & Jehangir, 2025). Accordingly, the first hypothesis is proposed:

H1: Transformational leadership increases human capital development

Transformational Leadership and Knowledge Sharing Behavior

Colleges and universities thrive on the philosophy of intellectual cooperation. The ability of members of the faculty to share research ideas, pedagogical plans, and administrative knowledge will have an enormous impact on the knowledge ecosystem of the institutions (Nazir et al., 2025). Transformational leaders play an important role in creating an open environment, which encourages knowledge-sharing behavior (KS). They break the hierarchy and further foster trust between the faculty and the staff by offering intellectual stimulation and inspirational motivation, thus allowing information

and new ideas to move freely (Sial et al., 2025). Transformational leadership offers a suitable avenue within the context of a South Punjab where the institutions of higher learning have bureaucratic management and communication silos that might help foster collective learning and innovation (Ahmad et al., 2025). By rewarding and acknowledging knowledge exchange, leaders form academic networks that enhance pedagogies and productivity in research. Positive relationship between transformational leadership and the willingness of employees to share both tacit and explicit knowledge has been supported by empirical studies carried out in Pakistan (Waseem et al., 2025). Thus, the second hypothesis of this study is stated as:

H2: Transformational Leadership Increases Knowledge Sharing Behavior

Knowledge Sharing Behavior and Human Capital Development

The role of transformation leadership is pivotal in building a culture of knowledge sharing in organizations. Using a vision, motivational, and developmental approach, transformational leaders encourage, inspire, and stimulate employees. Such leadership style cultivates trust, and an open and collaborative culture conditions that encourage sharing knowledge. Leaders who advocate for collaborative work and acknowledge individual contributions build confidence in employees and increase their willingness to share knowledge with others. Several authors have established a positive relationship between transformational leadership and knowledge sharing and collaborative learning (Son et al., 2020). Transformational leadership has also been evidenced to foster the exchange of knowledge by enabling employees and advocating for positive organizational climate (Sudibjo & Prameswari, 2021). Recent research has further established that transformational leadership boosts knowledge sharing, an important predictor of organizational learning and innovation (Bahagia et al., 2024; Saif et al., 2024). It is for this reason transformational leadership is an imperative antecedent for knowledge sharing in organizations.

Drawing from a conceptual framework to analyze and understand knowledge sharing, we have defined human capital development as enhancing an employee's value to an organization by improving their knowledge, skills, and professional abilities. Knowledge sharing facilitates employee learning and skill development. A workforce capable of working synergistically is an asset to an organization. The knowledge-based perspective of a firm is hinged on the value of knowledge as an asset to the firm and of the employee. (Grant 1996). Knowledge sharing is, and continues to be, an important variable of employee development and enhancement of their skills (Islam et al, 2023). Improved human capital development and organizational performance are attributed to knowledge sharing (Bai, 2025; Khoshnaw & Karadas, 2025). Knowledge sharing behavior is a vehicle toward the attainment of an organization's human capital development and enduring success.

H3: Knowledge Sharing Behavior Increases Human Capital Development

Mediating Role of Knowledge Sharing Behavior in Human Capital Development

The behavior of sharing knowledge (KS) has been determined as the social glue that facilitates the association between the leadership behaviors and organizational learning and innovation (Waseem et al., 2025). Transformational leaders enable open communication, psychological and collaborative conditions which are considered as essential to successful knowledge dissemination. Empirical evidence on Pakistani

organizations supports the claim that there is a mediating role of knowledge sharing between leadership and innovative performance (Nazir et al., 2025). Transformational leaders are more likely to have their employees contribute to sharing tacit and explicit knowledge, which will increase the collective intelligence and build of human capital (Sial et al., 2025). South Punjab has an institutional architecture that is collectivist based with hierarchical structures of governance which challenges Knowledge Strategy Building (KSB) in a different sense. Competitive labor markets and lack of formal recognition systems often lead to the fact that knowledge is often retained in individual actors. Transformational leaders reduce these barriers through the development of the trust-based environment which supports the exchange of information and mutual resolution of problems (Ahmad et al., 2025). Indirectly in promoting such dynamics, leaders enhance human capital by continually learning and developing together in an experience. It has been found that knowledge sharing is a mediating process that converts vision of the leader into realistic developmental results (Nazir et al., 2025). Knowledge-Based View (KBV) of the firm asserts that knowledge is the most strategically valuable organizational asset, and the Social Exchange Theory (SET) argues that trust-based reciprocity is the cause of the readiness of people to cooperate and share knowledge (Grant, 1996; Blau, 1964). Transformational leaders improve this knowledge sharing through psychological safety and a shared purpose thus forcing individuals to share intellectual capital to their collective growth (Sial et al., 2025).

This is practiced in academic institutions by joint research work, mentoring, peer learning and curriculum development. The participation of members of the faculty in active knowledge sharing does not only enhance competency levels of an individual faculty member but also increases the level of scholarship within an institution as a whole which further contributes to human-capital development. Pakistani empirical research in higher education indicates that the effectiveness of leadership in universities is highly reliant on the extent to which leaders enable and maintain knowledge-sharing environments (Nazir et al., 2025). Hence, the third hypothesis is articulated as:

H4: Knowledge Sharing Mediates the Relationship Between Transformational Leadership and Human Capital Development

Material and Methods

A deductive approach to research was adopted, where hypotheses were constructed from existing theories such as the Knowledge-Based View (Grant, 1996) and the Social Exchange Theory (Blau, 1964). There were three hypotheses tested regarding the direct and indirect relationships between the variables. Given the complexity of the models, the inclusion of mediation, and the overall framework, the use of PLS-SEM was justified.

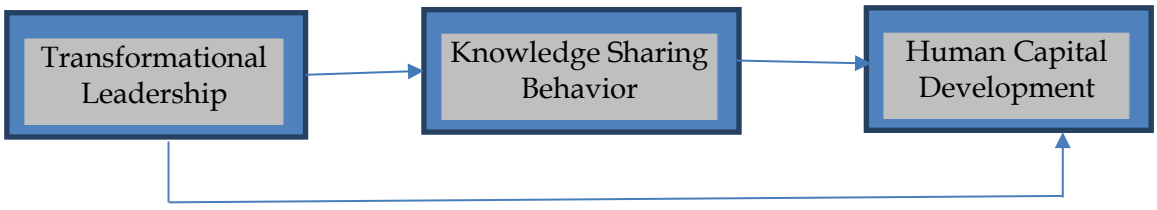

Figure 1: Research Framework

In this study, a quantitative research design was selected to capture the interplay of transformational leadership, knowledge sharing behavior, and development of human capital. Data was collected using the cross sectional survey methodology from participants employed across different organizations. With the aim of testing the study's hypotheses and understanding the causal relationship of the constructs through structural equation modeling (SEM), the quantitative method was deemed the most fit. The analysis of the measurement and structural models was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) and SmartPLS software, which was used for the analysis.

The target population comprised organizational workforce development practitioners, leadership and knowledge sharing relevant employees. Due to accessibility issues, a non-probability sampling technique, specifically convenience sampling, was employed. Respondents were chosen based on their presence, willingness, and ability to take part in the study. Employees were chosen because they had at least one year of organizational experience to capture leadership and knowledge-sharing practice views. A sample size of 240 was distributed from which responses containing the missing values were excluded, and the minimum sample size requirements of 200 respondents for PLS-SEM analysis were achieved for the final sample size. The sample size was in accordance with the "G-Power Formula" which stipulates that for any given model. The sample size determined by G-Power was 89, whereas sample of 200 was used for the reliable statistically significance. Barrett (2007) suggested that a minimum sample size of approximately 200 respondents is recommended for confirmatory factor analysis and structural equation modeling.

A structured questionnaire was used to gather primary data, and was made available in online format. In collaboration with participants, the study was explained and confidentiality and anonymity were promised prior to data collection. Additionally, participant's responses were completely voluntary and data collection was carried out in a manner that was ethically sound and resulted in the least amount of bias.

Results and Discussion

Normality of the Data

The evaluation of dataset normality is the first step before beginning structural equation modeling. This process starts with determining if the dataset is an appropriate candidate for normal statistical analysis. This was done by evaluating the skewness and kurtosis for each of the constructs. The assessment of normality for the dataset was carried out through the study variables' skewness and kurtosis statistics. With skewness between -0.87 and 0.64 and kurtosis between -1.12 and 1.45, the data distribution stays within the acceptable range of normality. The analysis demonstrated that the dataset and variables had an acceptable range which means that dataset normality was not violated. Still, there is no definitive requirement for PLS SEM analysis to have normally distributed data. This is why dataset normality was not an exclusion criterion for the type of evaluation versus complexity of the models. It is for these reasons that the dataset was acceptable for analysis using SmartPLS.

We used partial least squares (PLS) modeling using the SmartPLS 4 version (Ringle et al., 2022) as the statistical tool to examine the measurement and structural model as it does not require normality assumption and survey research is normally not normally distributed (Chin et al., 2003).

The multicollinearity assessment for the predictor variables was conducted considering the standard formula, Variance Inflation Factor (VIF). The value of VIF determines the level of inter-correlation of the independent variables, which may lead to misleading results in the regression analysis. The standard recommendation states that VIF values below 5.0 suggest that there is no presence of extreme multicollinearity. The VIF values that were recorded in this analysis fell below the acceptable limits. This confirmed that multicollinearity did not constitute a problem in the structural model.

Evaluation of the Measurement Model

We followed the developing first step approach to test the model. First, we tested the measurement model to test the validity and reliability of the instruments used following the guidelines of Hair et al. (2022) and Ramayah et al. (2018) then we ran the structural model to test the hypothesis developed.

For the measurement model we assessed the loadings, average variance extracted (AVE) and the composite reliability (CR). The values of loadings should be ≥0.5, the AVE should be ≥ 0.5 and the CR should be ≥ 0.7. As shown in Table 1, the AVEs are all higher than 0.5 and the CRs are all higher than 0.7. The loadings were also acceptable with only one or two loadings less than 0.708 (Hair et el., 2022). Since we have 3 constructs which are namely 1. Transformational Leadership, 2. Knowledge Sharing Behavior, and 3. Human Capital Development.

We assessed the discriminant validity using the HTMT criterion suggested by Henseler et al. (2015) and updated by Franke and Sarstedt (2019). The HTMT values should be ≤ 0.85 the stricter criterion and the mode lenient criterion is it should be ≤ 0.90. As shown in Table 2, the values of HTMT were all lower than the stricter criterion of ≤ 0.85 as such we can conclude that the respondents understood that the constructs are distinct. Taken together both these validity test has shown that the measurement items are both valid and reliable.

Table 1
Measurement Model

Construct	Item	Loading	AVE	CR
Transformational Leadership	T1	0.742	0.518	0.955
	T2	0.784		
	T3	0.802		
	T4	0.831		
	T5	0.894		
	T6	0.931		
	T7	0.820		
	T8	0.902		
	T9	0.798		
	T10	0.795		
	T11	0.864		
	T12	0.890		
	T13	0.765		
	T14	0.921		
	T15	0.841		
	T16	0.778		
	T17	0.916		
	T18	0.837		
	T19	0.811		
	T20	0.798		
Knowledge Sharing Behavior	KS1	0.823	0.699	0.921
	KS2	0.846		

	KS3	0.859		
	KS4	0.871		
	KS5	0.884		
Human Capital Development	HC1	0.792	0.614	0.966
	HC2	0.847		
	HC3	0.886		
	HC4	0.913		
	HC5	0.932		
	HC6	0.892		
	HC7	0.788		
	HC8	0.914		
	HC9	0.799		
	HC10	0.922		
	HC11	0.833		
	HC12	0.824		
	HC13	0.919		
	HC14	0.779		
	HC15	0.796		
	HC16	0.923		
	HC17	0.866		
	HC18	0.911		

All indicators mentioned in table 1 show a strong outer loading value of greater than 0.70 which confirms strong reliability of the indicators (Nazir et al., 2025). This also shows that the measurement items are valid for their corresponding latent constructs.

The composite reliability (CR) values (0.955, 0.921, and 0.966, respectively) are well above the accepted standard which shows the reliability of the constructs. Also, the Average Variance Extracted (AVE) values for the three construct (0.518, 0.699, and 0.614) all exceed the required threshold of 0.50 which shows the convergent validity (Waseem et al., 2025). This shows that all constructs explain 50% of the variance in the indicators. The measurement model meets the imposed standards of validity and reliability. Hence, the constructs are statistically valid for the structural model analysis.

Table 2
HTMT (Discriminant Validity)

Constructs	1	2	3
Transformational Leadership			
Knowledge Sharing Behavior	0.642		
Human Capital Development	0.681	0.711	

Further, the results from the HTMT as mentioned in table 2 also show that all values for the constructs lie below the necessary threshold of 0.90 (Kim & Park, 2024), which confirms discriminant validity. This means that transformational leadership, knowledge sharing behavior, and human capital development are constructs that are statistically different.

Structural Model Assessment and Bootstrapping

According to the specified coefficients (β), t-values, p-values, and confidence intervals, the model, the structural model, is assessed through projection available in SmartPLS, which evaluates the model using a preview folding procedure. Folding is a non-parametric method used to test the significance of constructs in PLS-SEM models. In this study, 5000 bootstrap resample were generated to obtain stable and reliable estimates recommended by Hair et al. (2019). The predictive accuracy of endogenous constructs was measured by R^2, and effect size (f^2) was assessed to know the impact of exogenous variables suggested by Hair et al. (2019). The significance of constructs related to

variables was determined by t-values greater than 1.96 and p-values less than 0.05. The analysis showed that transformational leadership, with a significant probability, influenced the development of delegated behavior and the development of human capital. Furthermore, the impact of delegated behavior on the development of human capital was noticeable, which, in accordance with the proposed hypotheses, supports these relationships in the structural model.

The model we assessed in this experiment through SmartPLS and the connections between the three latent constructs of Transformational Leadership, Knowledge Sharing Behavior (Mediation), and Human Capital Development (Endogenous). Leadership is modeled as an exogenous variable and is measured using multiple indicators (T1–T20), while Knowledge Sharing Behavior (KS1–KS5) acts as the mediating construct, and Human Capital Development is the endogenous variable measured by multiple indicators (HC1–HC18). The arrows are the hypothesized causal relationships, meaning that Transformational Leadership impacts Knowledge Sharing Behavior and that is how it affects Human Capital Development. The model captures both the direct and indirect pathways, as it relates to a full mediation model. To test the mediation hypotheses, we followed the suggestions of Preacher and Hayes (2004; 2008) by bootstrapping the indirect effect. If the confidence interval does not straddle a 0 then we can conclude that there is significant mediation as shown in Table 4. The confidence intervals bias corrected 95% also did not show any intervals straddling a 0 thus confirming our findings.

Table 3
Coefficient of Determination (R^2)

Endogenous Construct	R^2
Knowledge Sharing Behavior	0.351
Human Capital Development	0.478

Table 3 shows the coefficient of determination (R^2) value for each variable, which shows the power of each structural model to explain variance. The R^2 value for knowledge sharing behavior is 0.351, meaning that transformational leadership accounts for 35.1% of the variance in knowledge sharing behavior. R^2 for human capital development is 0.478, which means that both transformational leadership and knowledge sharing behavior account for 47.8% of the variance in human capital development. This shows that the model is of moderate explanatory power. As per the PLS-SEM guidelines, R^2 value of 0.25 is considered weak, 0.50 is moderate, and 0.75 is substantial (Hair et al., 2017).

Table 4
Hypothesis Testing Effects / Bootstrapping Results

H	Relationship	B	SD	t	P	95% CI (LL)	95% CI (UL)	f^2	VIF
H1	T → HC	0.439	0.104	4.221	0.000	0.231	0.612	0.27	1.84
H2	T → KS	0.592	0.087	6.813	0.000	0.418	0.744	0.54	2.12
H3	KS → HC	0.382	0.097	3.957	0.000	0.198	0.552	0.19	1.96
H4	T → KS → HC	0.227	0.079	2.874	0.004	0.102	0.356	-	1.32

Note. β = standardized path coefficient; CI = confidence interval; LL = lower limit; UL = upper limit.

In table 4 the bootstrapped analysis shows all path coefficients have t-values higher than 1.96 (<0.05) and p-values less than 0.05 (<0.05) (Bahagia et al., 2024). Hence all hypothesized relations in the structural model remain validated. As suggested by Hair et al. (2022) and Cain et al. (2017) we assessed the multivariate skewness and kurtosis. Following the suggestions of Becker et al. (2023) we reported the path coefficients, the

standard errors, t-values and p-values for the structural model using a 10,000-sample re-sample bootstrapping procedure (Ramayah et al. 2018). Also based on the criticism of Hahn and Ang (2017) that p-values are not good criterion for testing the significance of hypothesis and suggested to use a combination of criterions such as p-values, confidence intervals and effect sizes.

The effect size (f^2) was considered to quantify the relative influence of each predictor construct on the endogenous variables within the structural model. The findings show that transformational leadership affects knowledge sharing behavior to a great extent ($f^2 = 0.54$). Transformational leadership also exhibits a moderate impact on human capital development ($f^2 = 0.27$). Additionally, knowledge sharing behavior exhibits a small, yet noteworthy, effect on human capital development ($f^2 = 0.19$). These results indicate that transformational leadership is a significant factor in fostering knowledge sharing practices, which in turn, facilitates the enhancement of human capital. Gignac, and Szodorai (2016) stated that the benchmarks for small, medium, and large effect sizes are 0.02, 0.15, and 0.35, respectively.

Table 4 shows the VIF values of the predictor variables and endogenous variables as 1.84, 2.12, 1.96, and 1.32 respectively. To assess predictor variables for multicollinearity, all VIF values are under 5.0, thereby no multicollinearity evaluation needed (Bai, 2025). Hence the model's predictors are independent.

The bootstrapping findings show that all assumed relationships are statistically significant and that t-values are above the suggested level of 1.96 and p-values are less than 0.05 confirming these significant relationships (Saif et al., 2024). In addition, the confidence intervals show stability and reliability of the estimated path coefficients as they do not contain zero. These results validate the relationships of the variables transformational leadership, knowledge sharing behavior, and human capital development.

Transformational leadership positively effects human capital development ($\beta = 0.439$) which is in support of Hypothesis 1 (Liu & Zainal, 2024). Transformational leadership shows positively affects and explains knowledge sharing behavior ($\beta = 0.592$) (Nguyen & Phong, 2024). This supports Hypothesis 2. The impact of this research study is that transformational leaders create a culture of knowledge sharing and collaboration. Knowledge sharing behavior explains human capital development ($\beta = 0.382$) positively (Saif et al., 2024), it supports the Hypothesis 3. This is illustrated in the graph knowledge sharing behavior has positive influence. Plus, the strong effects of knowledge sharing are unequivocal in making the positive, quieter, and robust impacts to the organizational development which is solid, affirmative, and positive. Plus, all positive effects are confirmed and impacts in the structured model.

Further it shows the results of the mediation analysis of the relationship of transformational leadership to the development of human capital through knowledge sharing behavior. The path coefficient of the indirect path ($\beta = 0.227$) is positive (Zhang & Choi, 2024) which means that transformational leadership increases human capital development through knowledge sharing. This finding confirms Hypothesis 4 and shows that knowledge sharing behavior acts as a mediator within the model (Saif et al., 2024). The value of the indirect effect shows that a leader's influence on human capital development is channeled mostly through the increase of knowledge sharing. Moreover, the analysis shows that transformational leaders foster employee development by promoting a culture of sharing and learning. The analysis shows that sharing knowledge

is the means through which leadership practice is linked to improving the organization's capability. The analysis also shows that knowledge sharing behavior strengthens the relationship between transformational leadership and the developmental outcomes of human capital.

The findings as for this study show how positive transformational leadership impacts both the behaviors pertaining to sharing of knowledge and development of human capital. The results show transformational leadership impacts sharing of knowledge behaviors (β = 0.592). This shows how people-centered leadership promotes behaviors of collective sharing. Partially positive impacts were also found for direct transformational leadership human capital development (β = 0.439). This shows how people-centered leadership impacts the development of employee capabilities and competencies. The development of human capital was positively influenced by behavior of sharing knowledge (β = 0.382). These shows how important the role of learning and working together is while the organization is developing itself (Khoshnaw & Karadas, 2025). The behavior of sharing knowledge was also found to mediate positive impacts of transformational leadership on development of human capital (β = 0.227). This is shows how leadership positively impacts human capital of the organization by facilitating knowledge sharing behaviors. We also found most of the results to test our hypotheses and for the theoretical framework of the study to hold true. This shows how positively leadership impacts development of the competence and knowledge sharing environment of the organization. Moreover, the study provides practical implications to the policy makers and the managers of organizations, guiding them on how to design an intervention strategy to enhance talent levels and the learning ecology in underdeveloped areas in Pakistan.

This research sought to study how transformational leadership affects knowledge sharing behavior and development of human capital, as well as understanding knowledge sharing behavior as a mediator in this relationship (Ahmad et al., 2025). The results of the study are favorable to the proposed theoretical model and articulate the role of leadership in the development of organizational capacity. The results indicate that transformational leadership has a positive and significant impact on knowledge sharing behavior (β = 0.592). This means that leaders who inspire and coach their people are more likely to create a culture of knowledge collaboration (Khoshnaw & Karadas, 2025). It is noted that transformational leaders value trust, sharing of power, and a common goal which removes inhibitions to knowledge sharing. Employees under such leadership are more likely to contribute expertise, communicate openly, and support collective learning processes. This result is consistent with leadership and knowledge management theorists establishing that leadership style is a key determinant of organizational knowledge (Hassan & Jehangir, 2025).

The research indicated that transformational leadership affects human capital development (β = 0.439). This means that leaders are likely to develop employee skills, competencies, and professional advancement. Transformational leaders develop their employees and help them grow by means of mentoring, coaching, stimulating their thoughts, and nurturing supportive communication. This positive direct relationship suggests that leadership behavior influences short-term performance and long-term development of capabilities in the organization (Islam et al., 2023).

In addition, the findings show that the employee's knowledge sharing behavior positively affects human capital development (β = 0.382). This means that if employees share knowledge, an organization improves its workforce skills and collective expertise.

Enhanced human capital development relies on innovative use of skills through experience, learning, and knowledge sharing. This finding affirms that learning is a social process (Nazir et al., 2025).

The most notable finding in this study is the role of knowledge sharing in transformational leadership and human capital development (β = 0.227). The indirect effect suggests that transformational leadership impacts human capital development positively because of knowledge sharing. This result suggests that the influence of leadership works through mechanisms of behavior in the organization. The leaders do not only develop the employees, but they also develop the organization in a way that knowledge sharing is facilitated. This development of structure in organization further develops human capital (Son et al., 2020).

The partial mediation suggests that transformational leadership has a direct impact on human capital development, but a majority of its influence is through knowledge sharing. This finding highlights the importance of cultivating a knowledge sharing system alongside the development of leaders. Organizations that want to develop the employees' competencies need to go beyond just leadership development to knowledge sharing system development as well (Sudibjo & Prameswari, 2021).

The results can be used for theory and practical use. In theory, the study connects the gaps in the theory of leadership, knowledge management, and human capital development. This is the result of the study showing how leadership leads to the development of the organizational capabilities of the organization. This study continues the argument that leadership effectiveness is viewed as part of the overall organizational processes as opposed to being an isolated factor (Suhana et al., 2019).

Conclusion

From the perspective of practicality, results show that managers using leadership that is transformational in style leads to the sharing of organizational knowledge and the development of people. This also means that organizations need to develop other means for leadership to be effective, for example, the policy of encouraging teams, mentoring, and other means of collaboration across the various sectors of the organization. When organizations integrate leadership and knowledge management, they have the potential to develop an unprecedented competitive advantage that is based on human capital (Waseem et al., 2025). There is no doubt that transformational leadership is critical in the sharing of organizational knowledge and the development of people. This includes the results showing that knowledge sharing is the only conduit of leadership that links the development of workforce capabilities.

This research suggests that companies develop and practice transformational leadership for the purposes of making improvements to their human capital. This means that leadership development programs should teach a leader to motivate, and show their employees how to be a part of a team, along with mentor and coaching them. More formal knowledge sharing is the goal of teamwork, mentorship, and coaching. Trust and open communication in a knowledge culture are essential. Management should recognize and reward knowledge sharing. There should be knowledge workers, and professional development should be provided. Knowledge workers should be part of the leadership and knowledge workers of the company. Knowledge and leadership are the basis of competitive human capital.

Recommendations

There are some suggestions based on the findings of the study which can be directed towards organizations and policymakers. Organizations can focus on leadership training within the transformational leadership style as to how to motivate, academically challenge, and provide personalized support to create a more focused approach. Management can provide systems and structures for the knowledge sharing of employees and the use of cloud-based collaborative and team learning systems. It is also important for the creation of a culture of faith (or trust) and openness that encourages the knowledge and experience exchange of individuals. Organizations can also support and recognize those that knowledge share. Improving the knowledge management and leadership development processes can support the organization's human capital and improve organizational development over time.

Implications

The results of this research offer valuable theoretical and practical contributions to organizations focused on the development of their human capital. This research underlines the importance of transformational leadership in developing an organizational culture of support and encouragement of employee participation in knowledge-sharing. Transformational leaders sustain and support the development of employee competencies and the learning of the organization by providing and encouraging an environment of open communication, trust, and intellectual support. The results of this research indicate that the practices of leadership and those of knowledge management must be congruent to achieve the goals of sustained development of the workforce. Thus, organizations must focus on developing their leaders to initiate and sustain knowledge exchange and a culture of learning in the organization. This is an important contribution to the literature of leadership and knowledge management as it illustrates the impact of leadership behavior on the development of human capital.

Future Research Directions

This research can be extended by studying different elements of human capital development. Workplace factors like organizational culture, employee engagement, or support systems can be incorporated to better study how knowledge sharing is influenced by such factors. Other studies can be designed longitudinally to research how employee development is influenced by leadership or knowledge sharing within certain time frames. Such research can be done through the use of longitudinal flow studies or through comparative studies within different workplaces and different countries. Researching the influence of different leadership styles like servant or ethical leadership on knowledge sharing can also be included. These studies can be beneficial to the current body of knowledge and the current findings.

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