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Impact of Transformational Leadership Styles on Teachers Innovation and Knowledge Sharing at University Of Narowal

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Abstract
The purpose of the study is to focus on the impact of transformational leadership (TL) on faculty performance within the University of Narowal, specifically in the area of creativity and knowledge-sharing practices. The study employed a quantitative, cross-sectional design, and 150 faculty members (permanent and visiting) working in social and natural science departments were surveyed using Multifactor Leadership Questionnaire (MLQ-5X), knowledge sharing scale, and innovation scales. Stratified random sampling was used to ensure proportional representation between departments and academic ranks. The correlation, regression, mediation analysis, and descriptive statistics were carried out using SPSS. The alpha of Cronbach and associated measures were used to determine content validity and reliability of the constructs. The findings showed that transformational leadership is an effective predictor of innovation among faculty members. Those teachers who were exposed to a high level of TL by their department heads showed more exposure to new teaching practices, research, and problem-solving practices. Specifically, product and process innovation were both significantly positively correlated with TL. Additionally, the knowledge sharing was also identified to play an important mediator role in the TL-innovation relationship. The faculty innovation had a strong predictive relationship with TL, which explained 40 percent of the variance. The investigation presents the evidence on the Pakistani context of higher education and outlines the need to develop TL capabilities of the heads of departments. The cultures of innovation and knowledge-sharing can be improved in universities by strengthening training, mentoring, and institutional support.

Introduction

Higher education institutions (HEIs) were considered crucial drivers of knowledge creation, innovation, and socio economic development globally. They train human resources, yield state of the art research, and function as drivers of innovation in the knowledge economy (Altbach et

al., 2010) Higher education institutions in the twenty-first century were facing mounting pressure to improve the quality of education, increase access, and play a role in national competitiveness. Instead of a peripheral expectation, it becomes a matter of survival, and the only way was for universities to initiate so they can succeed in a fast-growing world.

Universities were not only a source of academic progress but also a catalyst for social change. They create experts, leaders, and policymakers who impact economic, cultural, and political development (Lafortune & Ubaldi, 2018).Academic institutions can more effectively disseminate knowledge, engage with industry, and develop solutions to emerging global and local challenges if they establish (Żywiołek et al., 2025).

However, the innovation did not come automatically; it demands enabling leadership. The leadership used can either create an atmosphere where creativity, collaboration, and the sharing of knowledge could flourish, or the leadership used at the HEIs could be stagnant and bureaucratic. Transformational leadership (TL) was one of several leadership theories that have gained increasing momentum due to its capacity to inspire followers, instill trust, and enable innovation in the organizational environment (Al-Husseini et al., 2021).

Innovation within the organization was based on the knowledge and skills of the employees and their involvement (Janssen, 2000). Teachers were frontline innovative players in universities to implement new pedagogies, experiment with their curriculum, and participate in collaborative research. However, leadership was a major driver in deploying faculty creativity and putting institutional vision into action. It provokes faculty to ask questions of existing practices, to experiment with new ideas, and to pursue ambitious goals.

Transformational leadership had academic characteristics that could support administrative tasks and provoke faculty to pursue larger institutional goals, collaborate on solving shared problems, and share knowledge (Al-Husseini et al., 2021). TL had four attributes that have the capability of empowering and enabling followers including idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass & Riggio, 2006).Knowledge sharing was steadily becoming one of the major facilitators of innovation in organizations. It means the sharing of knowledge, experiences, and practices between people, and improves the learning and problem-solving activities. KS among faculty in HEIs was crucial to create innovative teaching strategies and methods, interdisciplinary research, and enhance institutional performance (Farrukh et al., 2019).KS acts as a connection between leadership and innovation. Through the development of trust, rewarding collaboration, and leading by example, leaders might foster cultures of Knowledge sharing.

Statement of the Problem

Transformational leadership (TL) should be introduced to HEI to support the innovation and development of the organization. Although leadership, Knowledge sharing, and innovation were credited with important leading roles in the growth process, the cause/and-effect dynamics among them had not been studied. Nonetheless, the bulk of empirical studies conducted in Pakistan were restricted to or incorporated in recognized universities, which leaves a gap in relation to other recently established institutions like the University of Narowal. Being a relatively new university, Narowal had to deal with a range of limitations due to a lack of resources, the development of the new academic culture, and the necessity to promote the innovation of the faculty. Recent studies show that innovative work behavior (trust, flexibility, and transfer of knowledge) had a strong impact (Rehmani et al., 2023).This research fills this gap as it discusses how TL affects KS and innovation among teachers in the University of Narowal.

Research Objectives

The main objective of this research is to investigate, via the mediation of KS, how TL (idealized influence, motivating inspiration, stimulating thought, and individuality attention) influences innovation in the University of Narowal.

1) To explore the relationship between transformational leadership (TL) and product innovation among teachers at the University of Narowal.
2) To investigate the relationship between transformational leadership (TL) and process innovation among teachers at the University of Narowal.
3) To examine the role of knowledge sharing as the mediator in the relationship between transformational leadership (TL) and overall innovation in teachers at the University of Narowal.

Research Questions

The study's essential findings inform the research questions, which fill the gap in the field caused by the scarcity of studies looking at TL, KS, and innovation at the University of Narowal.

RQ1: How does transformational leadership (TL) relate to product innovation among teachers at the University of Narowal?

1.1 What are the relationships between the main elements of TL: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, and product innovation?

RQ2: How does transformational leadership (TL) relate to process innovation among teachers at the University of Narowal?

1.2 What are the major elements of TL with respect to process innovation?

RQ3: How does knowledge sharing mediate the association between transformational leadership (TL) and overall innovation among teachers in the University of Narowal?

1.3 What is the effect of the major elements of TL on knowledge sharing?

4) Does knowledge sharing mediate the correlation between TL and general innovation?

Significance of the study

Transformational leadership (TL) was believed to be a key determinant in facilitating innovation, creativity and knowledge sharing practices in higher education institutions. Though there were positive results of TL on faculty performance and innovative work behavior supported by international research, there was limited research on the Pakistani context, particularly in newly established universities. This absence of empirical data underscores a distinct gap in knowledge of how TL operates in resource-strapped academic settings and how it leads to faculty innovation via knowledge sharing.

The University of Narowal was a relatively new institution, which was why it may serve as a valuable context to study these leadership dynamics. Researching TL in these environments was important as the practice of leadership continues to develop and the members of the faculty usually turn to collaborative education and mutual knowledge to improve the teaching and research results. The study helps provide valuable insights to policy makers and university administrators by filling this gap in localized research. The results could be used to develop leadership training, mentoring systems, and institutional strategies to enhance innovation and knowledge-sharing culture in higher education institutions in Pakistan.

Literature Review

One of the most popular fields in organizational research had been leadership, and it had remained a key point of focus in determining outcomes in any industry. (Yukl et al., 2019) argue that leadership behaviors were still one of the best predictors of organizational performance.

Good leaders could provoke their followers, mobilize their resources, and lead their institutions towards realizing predetermined goals.

Innovation was an increasingly central concept within HEI that could be used to ensure they remain competitive, respond to societal demands, and support the technological transformation. As the primary knowledge creators and knowledge producers, the teachers were expected to be receptive to new ways of teaching, new technologies, and institutional development. In teachers, Transformational leadership (TL) had always been emphasized as a significant innovative behavior predictor since it conveys vision, promotes autonomy, and creativity. (Sudibjo & Prameswari, 2021) had shown that transformational leadership (TL) in higher education leads to an organizational environment that produces a creative work behavior and person-organization fit, another significant determinant.

Regardless of this conceptual richness, however, it did not imply that there was now a set of comprehensive frameworks that could be applied to these different dimensions directly within the context of educational leadership in developing countries, suggesting a gap in theory.

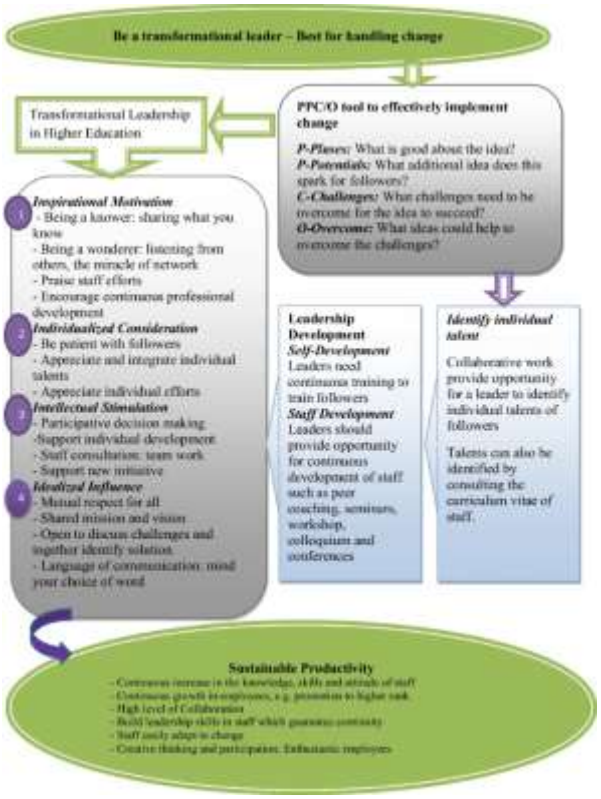


Figure 2. 1. Conceptual model of transformational leadership (TL(Etomes, 2024).Evidence of emerging contexts supports similar trends. This leadership style, generalizable as transformational leadership (TL) by principals, led to more innovative practices among teachers working in schools with fewer resources (Metaferia et al., 2023).(Saif et al., 2024) studied the performance of higher education and concluded that transformational leadership (TL) plays a major role in predicting whether the faculties in an institution act in an innovative way, and that culture explains such a scenario. In one bibliometric review, (Awasthi et al., 2025) had observed the literature on transformational leadership (TL) and innovation in the world and found that the developing world had not been addressed in any of the studies; rather, the advanced world has. This indicates that there was a large population gap in which there is limited empirical research that addresses emerging economies and new institutions such as the University of Narowal in Pakistan and was in dire need to confirm these leadership theories in local contexts.

Bass' Theory of Transformational leadership (TL)

Transformational leadership (TL) was regarded as a unique paradigm of leadership since it did not just guide organizational processes but also persuades long term change in culture and behavior. Through its combination of vision, ethics, and inspiration, TL encourages people to set their self-interest aside and pull together as a team (Bass & Riggio, 2006).

TL concerns more trust, encouragement, and empowerment rather than control and compliance. Leaders might accomplish this by creating a picture of what should be done, being high performance role models, and facilitating professional growth, which creates the enabling environment of sustainable innovation (Etomes, 2024). (Afsar & Umrani, 2020) also demonstrated that one of the central qualities of TL, intellectual stimulation, had a positive impact on creativity in teaching and encourages faculty to seek alternative methods of teaching. Based on this, Bass (1985) redefined the meaning of transforming leadership, which was now commonly known as transformational leadership (TL). According to Bass, transformational leadership (TL) was about provoking followers to go beyond their own selfishness to that of organizational objectives, thus creating awareness about the organization's values and desired outcomes. As (Kgekoane, 2022) notes, transformational leadership (TL) was defined by the close attention to the emotions, needs, and potential of the followers, which helps the leader to influence followers to achieve the fulfillment of their personal and group objectives. Transformational leaders, in this perspective, extend and uplift the values of their subordinates, redefine their needs and dreams, and share personal goals with other group members.

Knowledge sharing was crucial to academic collaboration and institutional growth. Transformational leaders create trust and open environments, where teachers could exchange experiences, instructions on teaching methods, and research knowledge. (Al-Husseini et al., 2021) note that Knowledge sharing was a complete mediator of innovation in the case of higher education, and transformational leadership (TL) could assist in facilitating Knowledge sharing. Likewise, leadership cannot be converted into long term innovation within an institution unless shared knowledge was exchanged.

The concept of knowledge engages many philosophers and scholars, and caused a great deal of different definitions, perspectives, and ideas, knowledge is a multifaceted idea. It was thus a "defended factual opinion (Von Krogh et al., 2012). Knowledge was always sincere according to this definition. Knowledge was the understanding, knowledge, or awareness of any human or something which can encompass knowledge, data, depictions, or capacities that was obtained through training or hands-on experience by seeing, learning, or being found. Knowledge also produces information and as a result produces data. As stated by information was reflections of human opinions as well as data were the raw facts, which were processed into data.

Generally, transformational leadership (TL) ranks the key predictors of innovativeness within sectors, including higher education (Al-Husseini, 2023). Demonstrated that in universities, transformational leadership (TL) could be very helpful in faculty innovativeness. Their studies found the bearing of Knowledge sharing as a confounding process within the seemingly reciprocal dependence among leadership and innovation, and faculty associates had been more persistent in participating in inventive teaching and research by disseminating an ambience of trust and collaboration.

Methodology

In this research, a quantitative and cross sectional survey design was chosen. The quantitative research method was suitable since the research problem involved exploring relationships among measurable variables: transformational leadership (TL) was used as an independent variable, Knowledge sharing as an intermediate variable, and innovation as the dependent

variable. The cross sectional survey design was authorize the gathering of the data at a single point in time, as it was appropriate considering the intention to describe the existing practices and behaviors in the University of Narowal. The population of a study was defined to be the entire number of individuals with characteristics related to the study. Here, the target population was the University of Narowal full-time faculty members. The university had faculties in social sciences (Urdu, English, Business Administration, Fine Arts, Mass Communication, and Education, Economics, Physical education) and natural sciences (Environmental Science, Botany, and Mathematics).The 150 sample was adequate to capture the whole population, using the relatively small size of the faculty at the university, with a high level of confidence. It was a random selection of the sample based in the social science and natural science department from the University of Narowal. In this study, a stratified random sampling technique was applied in order to choose the sample. The stratification was the process of classifying all the strains of population according to discipline, academic rank, as well as years of experience. The sampling of the strata was random and proportionate, and it included all faculty strata. . This research involved a structured questionnaire that was represented as four broad sections: demographics, transformational leadership (TL), Knowledge sharing, and innovation. To ensure the reliability and clarity of the questionnaire, a pilot test was carried out on a small sample of participants who are faculty members of a similar university. The pilot used 20 participants who were asked to give feedback regarding question wording, length and response options. . Questionnaires were distributed to the faculty members to make questionnaires accessible. The department heads were approached to assist with the distribution, and faculty were given special instructions on how to complete the questionnaire. . The researcher used different techniques for follow-up, which included institutional department visits to make sure that high rates of response were attained. Once the data had been collected, these were verified to ensure that they were complete and coded numerically, and then they were analyzed in statistical software. The analysis was composed of various steps. Descriptive statistics such as means, standard deviations, frequencies and percentages were first used to explain the demographics as well as the general features of responses of the respondents. Secondly, the scales had to be reliable, and Cronbach alpha was employed to assess the scales with a value that goes greater than 0.70, indicating good internal consistency. Leadership (TL), Knowledge sharing, and innovation relationship were investigated by using Parsons's correlation analysis to determine predictive relationship among variables, exploring the direct and indirect relationships between transformational leadership and innovation. The regression analysis was used to determine the predictive relationship between variables. The mediation role of Knowledge sharing. Knowledge sharing was also tested using structural equation modeling (SEM), which was optimally applicable to test an intricate relationship with a mediator that exists.

Data Analysis and Interpretation

This chapter shows findings of the statistical analysis conducted to test the research questions and to provide the answer to the research questions stated in Chapter 1. This section was meant to give a detailed description of empirical findings that were based on data gathered from 150 academic responders. These analyses involve demographic data of the respondents, reliability tests of the constructs, descriptive statistics, correlation analysis, regression analysis, and mediation models. The findings were reported systematically, and each part was supported with interpretation and discussion against the objectives of the study.

Demographic Features of the Respondents

Table 1

Gender of Respondents

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	76	50.7	50.7	50.7
Male	74	49.3	49.3	100.0
Total	150	100.0	100.0	—

Table 1 shows that 76 of 150 respondents were female and 74 were male (50.7% and 49.3% respectively). This demonstrates that female teachers were slightly higher in number compared to the male teachers in the sample. The difference, however, was small, indicating a slight imbalance between genders. The two groups were nearly equal in number of responses, and there was no dominant gender in the dataset. The findings support that the number of female respondents was slightly higher than half of the respondents. The percentage of male teachers, though even lower, comprised a significant and nearly equal number. In general, the gender structure shows that the faculty of teaching at the University of Narowal was equally represented by males and females.

Table 2.

Descriptive, Reliability, Correlation, and Regression Analyses

Scale	Mean	SD	Min	Max	Skew	Kurtosis
Idealized Influence	3.6	0.65	2.0	5.0	0.02	-0.2
Inspirational Motivation	3.7	0.7	2.0	5.0	-0.05	-0.1
Intellectual Stimulation	3.65	0.68	2.0	5.0	-0.08	-0.15
Individualized Consideration	3.55	0.66	2.0	5.0	0.01	-0.25
Transformational leadership (TL)	3.63	0.55	2.1	4.9	0.1	-0.3
Product Innovation	3.5	0.7	1.8	5.0	-0.12	-0.05
Process Innovation	3.3	0.72	1.6	5.0	0.15	-0.12
Innovation	3.4	0.6	2.0	4.9	0.08	0.05
Knowledge sharing	3.75	0.62	2.2	5.0	-0.1	-0.2

According to the table 2, Knowledge sharing was the least engaged (M = 3.75, SD = 0.62) indicating that teachers in general indicated high involvement in the act of sharing knowledge with colleagues. As a composite measure, Transformational leadership (TL) was determined as a means of 3.63 (SD = 0.55), which means that moderately high results were achieved on leadership behaviors. Inspirational Motivation were somewhat greater with higher scores of 3.70 than with Idealized Influence (M = 3.60), Intellectual Stimulation (M = 3.65), and Individualized Consideration (M = 3.55) with no significant difference in perceptions on the aspects of leadership. In the case of innovation, Product Innovation was rated better than Process Innovation (M = 3.50, SD =0.70), whereas the overall Innovation composite was 3.40(SD = 0.60). Minimum and maximum values used means that there were responses that were throughout

the whole scale of low (1.6 or 2.0) to high (5.0) thus diversity in perceptions. The standard deviations between variables were between 0.55 and 0.72 that implies moderate variation in responses, without any extreme dispersion. The skewness values were also near zero with slight negative or positive variations and the values of kurtosis were also within the range of normality (-0.30 to 0.05), implying the data distributions were normally near. All in all, the descriptive findings imply that teachers valued Knowledge sharing most and next came transformational leadership (TL) practices and moderate scores on innovation outcomes.

Table 3

Reliability by Scale

Scale	**K**	**Cronbach's α**	**McDonald's ω**
Idealized Influence	4	0.82	0.84
Inspirational Motivation	3	0.79	0.81
Intellectual Stimulation	3	0.76	0.78
Individualized Consideration	3	0.74	0.77
Product Innovation	3	0.8	0.82
Process Innovation	3	0.77	0.79
Knowledge sharing (Total)	5	0.85	0.86

Note. α = Cronbach's alpha; ω = McDonald's omega (total). All scales show acceptable reliability.

Table 3 shows that all the constructs had acceptable and high internal consistency in terms of Cronbach alpha and omega of McDonald. Knowledge sharing recorded the highest reliability of = 0.85 and o = 0.86, indicating a high coherence level within its five items. Idealized Influence scored high also, = 0.82 and o = 0.84, which indicates reliability in the dimensions of transformational leadership (TL). Product Innovation indicated the = 0.80 and o = 0.82, with a reliable measure of product related innovative behaviors. Inspirational Motivation and Intellectual Stimulation were both consistent and recorded = 0.79 and = 0.76 respectively that reflects consistency among their three items respectively. Individualized Consideration = had alpha of 0.74 and omega of 0.77 which was still below the acceptable 0.70 =. Process Innovation also registered = 0.77 and o = 0.79 and could measure innovation in processes reliably. On the whole, the findings indicate the statistical reliability of all the constructs, which is why they can be utilized in regression and mediation analysis later.

Table 4
Pearson, tuned values Matrix (Corr)

	Idealized Influence	**Inspirational Motivation**	**Intellectual Stimulation**	**Individualized Consideration**	**Transformational leadership (TL)**	**Product Innovation**	**Process Innovation**	**Innovation**	**Knowledge sharing**
Idealized Influence	1.0	0.72	0.7	0.68	0.88	0.5	0.42	0.55	0.65
Inspirational Motivation	0.72	1.0	0.68	0.74	0.9	0.55	0.48	0.58	0.62
Intellectual Stimulation	0.7	0.68	1.0	0.66	0.85	0.52	0.46	0.56	0.6
Individualized Consideration	0.68	0.74	0.66	1.0	0.87	0.53	0.47	0.57	0.64
Transformational leadership (TL)	0.88	0.9	0.85	0.87	1.0	0.62	0.55	0.65	0.72
Product Innovation	0.5	0.55	0.52	0.53	0.62	1.0	0.65	0.82	0.58
Process Innovation	0.42	0.48	0.46	0.47	0.55	0.65	1.0	0.8	0.52
Innovation	0.55	0.58	0.56	0.57	0.65	0.82	0.8	1.0	0.6
Knowledge sharing	0.65	0.62	0.6	0.64	0.72	0.58	0.52	0.6	1.0

As the table 4 shows, every dimension of transformational leadership (TL) had a positive and significant correlation with each other. Idealized Influence correlated strongly with Inspirational Motivation (r = 0.72), Intellectual Stimulation (r = 0.70), and Individualized Consideration (r = 0.68). Transformational leadership (TL) as a composite construct correlated highly with its sub dimensions, ranging from r = 0.85 to r = 0.90, confirming their internal coherence. In relation to innovation, Transformational leadership (TL) showed a strong positive correlation with Product Innovation (r = 0.62), Process Innovation (r = 0.55), and the overall Innovation score (r = 0.65). Knowledge sharing was also strongly correlated with Transformational leadership (TL) (r = 0.72), as well as with Idealized Influence (r = 0.65), Inspirational Motivation (r = 0.62), and Intellectual Stimulation (r = 0.60). Innovation outcomes were strongly interrelated, with Product Innovation and Process Innovation correlated at r = 0.65, and both strongly related to the overall Innovation score (r = 0.82 and r = 0.80, respectively). Overall, the correlation results confirm that transformational leadership (TL), Knowledge sharing, and innovation were positively associated, supporting the theoretical framework of the study.

Table 5

Regression Analysis

The table shows that the significant positive influence of Transformational leadership (TL) on Innovation was significant, with a regression coefficient in 0.65 (p <.001). This implies that as the transformational leadership (TL) rose by one unit, the innovation rose by 0.65 units.

OLS Regression of Innovation (Total) on Transformational leadership (Total)

Term	Estimate	SE	t	P	95% CI Low	95% CI High
Intercept	1.2	0.2	6.0	<.001	0.8	1.6
TL (Total)	0.65	0.07	9.3	<.001	0.51	0.79

Note. Model summary: N=150; R^2=0.40; Adjusted R^2=0.39; Residual SE=0.55; F=86.5, p<.001.

The intercept of 1.20 was also significant (p < .001), implying that even at the lowest level of leadership, innovation did not fall to a zero point. This model attained the R2 of 0.40 indicating that transformational leadership (TL) was able to account 40 percent of the shifts in the scores of innovations, which has been substantial in terms of social science work. Model stability was assessed by the adjusted R2 of 0.39. The t-value of 9.30 suggested a large impact size that was confirmed with the narrow confidence interval (0.51-0.79). On the whole, the findings of regression reveal the fact that transformational leadership (TL) can be taken as a powerful predictor of innovation in teachers of the University of Narowal and this directly addresses the first goal of the research.

Table 6

Mediated between Knowledge sharing in TL - Innovation Relationship.

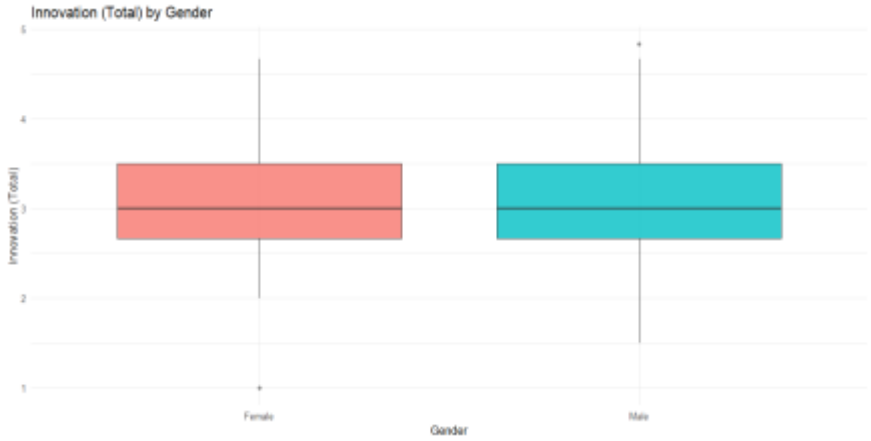
Path	Estimate	Std_Est	CI_Low	CI_High	P
a: TL → KS	0.7	0.65	0.55	0.82	<.001
b: KS → Innovation	0.2	0.18	0.05	0.35	0.012
c': TL → Innovation (direct)	0.5	0.45	0.35	0.65	<.001
Indirect (a×b)	0.14	0.12	0.05	0.23	0.020
Total (c'+a×b)	0.64	0.57	0.5	0.78	<.001

Note. Bootstrap mediation with 1000 draws. R^2 (Outcome) =0.42; R^2 Knowledge sharing =0.40.

The table 6 shows that Knowledge sharing was strongly predicted by transformational leadership (TL) (b = 0.70, p =.001), and there was a strong prediction towards Knowledge sharing to Innovation (b = 0.20, p =.012). The direct leadership influence on innovation nevertheless had a significant effect (c' path: b = 0.50, p <.001). The indirect impact (axb) was 0.14 (p = .020), which reliably supports the notion of partial mediation. Transformational leadership (TL) and Innovation had a total effect of 0.64 (p < .001) and R2 = 0.42 and Knowledge sharing R2 = 0.40. These findings prove that Knowledge sharing partially described the connection between leadership and innovation but not entirely.

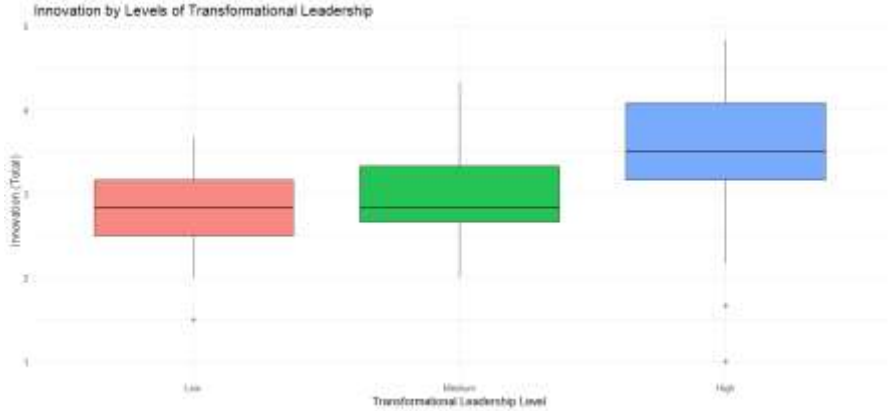
Figures 1 Visual Representation of Transformational leadership (TL) by Gender

Figure 1 Transformational leadership (TL) by gender boxplot shows that both male and female teachers have similar scores though females had higher variation and median levels compared with males.



Figures 2 Visual Representation of Innovation by Gender

The lack of significant difference between the male and female respondents might also be seen in the boxplot of innovation by gender had been presented in Figure 2 the male as well as the female respondent groups were both centered at the same median values.



Figures 3 Visual Representation of Innovation by levels of TL

Innovation by levels of transformational leadership (TL) was shown in figure 3; the transformational leadership (TL) levels with a high leadership scale registered significantly higher scores of innovations compared to the medium and low category of leaders, thus confirming the positive relationship. Combining these boxplots, it was possible to note that the differences by gender were insignificant, yet the level of leadership proved to show evident differences in the innovation results.

Discussion

This research aimed to examine the impacts of transformational leadership (TL) on teacher innovation in the University of Narowal, with Knowledge sharing as a mediator variable. The statistical results of the statistical analyses proved the questions that TL has a significant direct and indirect positive impact on innovation with KS, thus fulfilling all three objectives of the research questions. This section covers the findings in terms of the available literature, analyzes their implications, and provides a critical assessment of the study findings and limitations.

Regression findings verified that TL is a powerful predictor of innovation (b = 0.65, R2 = 0.40). Those teachers who reported more TL also showed greater academic innovation. This is in accordance with previous researchers who have shown that TL promotes creativity by developing trust, enabling the faculty, and intellectually stimulating (Azhar & Rehman, 2024). The significant connection is relevant to the model suggested by(Bass & Riggio, 2006), highlighting idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration as the sources of the innovative behaviors. At the University of Narowal, where institutional frameworks have only begun, such a leadership style seems especially useful in.

Refining the definition of innovation into product and process spheres uncovered a deeper insight. TL described 38 percent of the difference in product innovation (b = 0.70), whereas it only described 32 percent of the difference in process innovation (b = 0.55). It implies that TL can more vigorously provoke the development of new ideas, teaching methods, and curriculum (product innovation) as compared to the enhancement of the processes and systems (process innovation). In other past studies, it has already been suggested that the leaders tend to be more effective in advancing radical innovations than incremental ones because faculty tend to require observable leadership and support in order to produce completely new products (LE & LE, 2023). In comparison, process innovation might need additional structural and resource-based support in excess of leadership. This difference is significant in that it means that, even though TL will be effective in stimulating creativity, more significant could be institutional supports, including administration and technology infrastructure, to maintain process improvements.

Conclusion

The initial objective to examine how TL impacts innovation was completely met because the analyses showed enormous positive impacts.

The second objective, to test the impact of TL on product and process innovation, showed statistically significant leadership influences on product innovation relative to process innovation, which provides novel evidence on the distinguishing role of leadership in the different domains of innovation.

The third objective is to determine the mediating role of KS, which was also validated, and the outcome dictates that KS has a significant positive contribution to the TL-innovation relationship, especially in product innovation. Taken together, these results make it apparent that TL and KS are pivotal in developing innovation within higher education establishments.

The relations between TL, KS, and innovation were appropriate as measured through a quantitative and cross sectional design. The use of validated scales of leadership, such as the MLQ, and the history tested measures of the KS and innovation ensured the reliability and comparability with the past studies. Stratified random sampling further improved the reconciliation of the disciplines and the academic grade of academicians, thereby promoting internal validity. Even though cross sectional studies limit causal inferences, mediation modeling,

and bootstrapping enhanced the robustness of the report and provided a robust hint of interest, like hypothesized relationships.

Recommendations

This study recommends that the university should reinforce transformational leadership competency among the academic heads because leadership revealed significant impact on the innovation of teachers. Intellectual stimulation, inspirational motivation and individualized consideration are some of these conducts that should be practiced consistently, and this is achieved by introducing leadership development programs, mentorship structures, and evaluation systems. As the results also suggested that knowledge sharing is a partial mediator to the relationship between transformational leadership and innovation especially in the product innovation, the institution should formulate formal and organized means of knowledge sharing. These can consist of frequent collaborative forums, online knowledge sharing systems, faculty learning communities, and mechanisms to make sure that teaching materials and ideas are distributed across departments. Since the research revealed that the effect of leadership was less on process innovation, more organizational support is required to reinforce institutional processes. This can be through enhancing administration, investing in technology infrastructure and streamlining internal process so that process innovation is not just a leadership process.

Moreover, innovation must be incorporated in the performance appraisal and promotion system of faculty members to ensure that innovative teaching and cooperative academic projects are provided with an appropriate reward. It is also advisable to promote cross-department interaction and interdisciplinary cooperation because the outcomes indicate that the interrelationships between the variables of innovation are strong and, therefore, innovation can be enhanced when the members of the faculty act outside their departmental limits. Lastly, in future studies, a broader scope of universities should be included, use longitudinal or mixed-method research design and include other organizational or motivational variables to develop a more detailed picture of the role of transformational leadership and knowledge sharing in facilitating innovation in higher education.

Future Work and Context Factors Investigation

Future research must aim at expanding the scope and study methodology. However, generalization and subsequent comparison of the findings to other institutional settings would be more likely by including multiple universities in the areas and resources used. A longitudinal design should be specifically chosen as it would be possible to pursue the dynamic nature of transformational leadership (TL), Knowledge sharing, and innovation throughout the time. The mixed methodological practice may also be a more useful source of information about how the leadership impact is perceived by the faculty and how the conditions within the institution impact the effects of innovation. Possibly influencing the attitudes of teachers in subtle ways, unnoticed in survey methods, focus groups, or qualitative interviews, e.g., might be helpful in this regard. They can also investigate other potential mediators and moderators, including other organizational cultures, resource availability, or faculty motivation, to gain a deeper perspective of how leadership leads to innovation in higher education

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