

THE EFFECT OF TRANSFORMATIONAL LEADERSHIP ON YOUNG LECTURER INNOVATION CAPACITY IN SHANDONG HIGHER EDUCATION

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Abstract: *This research examines the effect of transformational leadership encompassing inspirational motivation, individualized consideration, intellectual stimulation, and idealized influence on the innovation capacity of young lecturers in higher education institutions in Shandong. Innovation capacity is examined through four dimensions includes domain-relevant skills, creativity-oriented processes, motivational drivers, and supportive environments. This study is quantitative research used questionnaire. 100 Young lectures in Shandong Province involved in this study. The data collected were analyzed by descriptive statistics, correlation test and multiple regression analysis to measure the relationship between transformational leadership practices and young lecturers' innovation capacity. Results showed that there existed a positive correlation close to 0.8 between transformation leadership and innovation ability of young lectures. The Pearson correlation coefficient was $r = 0.612$ ($p = .001$ with a statistically significant association. This relationship is also confirmed by additional simple linear regression analysis. Innovation Capacity is predicted by transformational leadership at 37.5% ($R^2 = 0.375$) with an adjusted R^2 of 0.363 and a standard error of the estimate of 0.550. A good predictive relationship of $R = 0.612$ attests to the strong relationship exactly exhibited by this prediction. Greater perceived transformative leadership among lecturers was positively related to innovation. This report highlights the necessity for universities to implement transformational leaderships traits, such as collaboration, intellectual stimulation and individualized consideration. Developing such environments has potential to provide a positive impact on the innovativeness of lecturers. These findings add to the literature on university leadership and provide actionable direction for policy-makers and academics.*

Keywords: *Transformational Leadership, Innovation Capacity, Young Lecturers, Higher Education*

Introduction

Relevant skills, creativity processes, motivation, and supportive environments consideration are essential factors in the process of innovation particularly among young lecturers in higher education and may increase the level of innovation through transformational leadership. Educationally worldwide, it has been regarded as an enabler of educational creativity and institutional flexibility in confronting modern challenges (Adeoye et al., 2025). Empowering academic leaders who adopt a transformational approach to leadership are also being positioned to take lead role in reform and global collaboration (Kiplangat, 2024). The largest higher educational base in China is also the place where it enhances faculty innovation by its influence to psychological contract, innovation culture and organizational justice (Wang, 2024; Zuo et al., 2024). This article focuses on Shandong, and the innovation ability of the young teacher directly affect the development of school and education excellence.

However, young lecturers in Shandong view transformational leadership and whether these views are associated with the innovating capability is less well understood. Indeed, whilst positive results in terms of faculty performance and innovation have been reported under transformational leadership (Kou et al., 2024), the experiences of new academics with it and the impact of demographic characteristics on this mode have received less attention. Without this insight, leadership approaches will not be able to effectively encourage innovation amongst this important group.

The Purpose of Study

This study aims to: (i) assess how young lecturers perceive transformational leadership, (ii) measure their level of innovation capacity, (iii) examine the relationship between transformational leadership and innovation capacity, (iv) analyze how well transformational leadership predicts innovation capacity, and (v) investigate the influence of gender, age, and educational background on these perceptions.

Literature Review

This review systematically sorts out the relevant research on transformational leadership and the innovative ability of young lectures, focusing on four core areas: the theoretical framework of transformational leadership, the constituent elements of the innovative ability of young lectures, the theoretical basis of leadership and innovation, and the empirical evidence of the relationship between the two. By integrating international and domestic Chinese research, it provides theoretical support for exploring the relationship between leadership in colleges and universities and organizational innovation activities.

Related Theories

This research is based on two development theoretical models: Bass and Avolio's theory of Transformational Leadership (1985), and Amabile's Componential Theory of Creativity and Innovation (1996). Transformational Leadership Theory describes four primary dimensions that illustrate how leaders can motivate, develop, and elevate their followers which includes idealized influence, inspirational motivation, intellectual stimulation and individualized consideration. In higher education, these leadership behaviors are particularly important if innovation is to be encouraged among young lecturers as they foster trust, autonomy and developmental opportunity. This theory is the theoretical basis for our conceptualization of young lecturer's perception toward their leaders and helped in formulating a hypothesis that leader behaviors would have a positive effect on innovation. Supporting this is Amabile's Componential Theory of Innovation, which argues that creativity and innovation are the product

of a combination between domain-relevant skills, creativity-relevant processes (such as problem-solving and divergent thinking), intrinsic motivation and an environment conducive to bringing where these meet. This model is especially appropriate for testing the innovation of young lecturers, as it includes both internal factors (skills and motivation) and external ones (institutional support). By combining these theories, the paper is able to investigate how transformational leadership influence the innovation capacity through changing the motivational and environmental prerequisites of innovation. In doing so the research probes not only if transformational leadership predicts innovation but how it allows young academics to use their knowledge in a creative way, to stay motivated and flourish within an academic culture.

Previous Research

Transformational leadership is composed of four core dimensions: inspirational motivation, individualized consideration, intellectual stimulation, and idealized influence. These elements collectively foster innovation and development in higher education. Regarding inspirational motivation, leaders unlock team potential by articulating a compelling vision. Zhang and Jiang (2025) observed that this dimension significantly improves teaching effectiveness in Chinese universities, particularly when supported by administrative systems. Similarly, Haryanengsi and Radiana (2024) demonstrated that principals exhibiting strong inspirational motivation enhance teacher engagement and overall institutional performance—a pattern also noted in global contexts (Rahman & Ferdausy, 2022).

The dimension of individualized consideration focuses on leaders' attention to faculty members' personal and professional growth. Yousefi et al. (2025) concluded that in Chinese academic settings, such personalized attention—when it builds strong interpersonal trust—markedly improves teacher performance, aligning with international studies on mentoring and motivation (Sulaiman et al., 2024; Mohebi & Elsayary, 2023). Intellectual stimulation, which encourages critical and innovative thinking, has been shown to substantially influence educators' creativity and adaptability (Zhang & Jiang, 2015). Zhu and Tabajen (2024) further stressed the importance of cultivating specific cognitive styles to stimulate creative ideation among Chinese university teachers, a finding consistent with international evidence (Khan & Amin, 2022). Lastly, through idealized influence, leaders serve as ethical role models. Yousefi, Zhang, and Jiang (2025) verified that this aspect significantly strengthens team trust and faculty commitment in Chinese universities.

As core agents of innovation in higher education, young lecturers see their innovative capacity shaped by multiple interrelated factors. Domain-relevant skills provide the necessary foundation, with deep content knowledge being a major contributor to creativity, as shown in studies from China and Southeast Asia (Zhao et al., 2023; Nguyen, 2023). Creativity-relevant processes—such as divergent thinking, risk-taking, and connecting disparate concepts—are vital for transforming existing knowledge into novel outcomes. When coupled with task motivation and domain skills, these processes considerably improve the prediction of innovation (Emami et al., 2022). Intrinsic motivation remains the most powerful predictor of lecturer innovation. Nguyen's (2023) research in Vietnam identified it as the top driver of young faculty creativity, and a Thai study highlighted its mediating role between institutional support and vocational teachers' innovation performance (Fongkanta & Buakanok, 2025).

Institutional culture and leadership initiatives establish a supportive ecosystem for innovation by promoting interdisciplinary exchange and mentorship. Yousefi et al. (2025) confirmed that

leadership and organizational culture in China directly affect young lecturers' creative self-efficacy and innovative behaviors. Likewise, ASEAN-based research indicates that environments rich in feedback and recognition foster greater innovation (Herijanto et al., 2023; Nguyen & Nguyen, 2023). These results uniformly point to the need for a holistic approach that combines skills development, motivational support, creative practices, and institutional backing.

Empirical work in Shandong Province offers further context-specific insights. Concerning leadership perceptions, Kou et al. (2024) reported that transformational leadership boosts teacher performance via psychological contracts and trust, and Liu (2023) linked teacher motivation directly to departmental heads' transformational leadership. In terms of innovative capacity, Wang et al. (2024) established that gender, academic motivation, and teacher-student relationships all shape academic innovation ability.

Mechanistically, Zuo et al. (2024) found transformational leadership influences job satisfaction and innovation through psychological capital and organizational justice, while Wang (2024) noted strong ties between transformational leadership and organizational innovation in Chinese vocational colleges. Zhang and Karnjanapun (2025) illustrated that in Shandong's vocational colleges, such leadership indirectly fosters innovation through educational motivation and self-efficacy. Demographic variables—including gender, age, and educational background—also serve as significant moderators in these dynamics (Wang et al., 2024; Liang, 2025).

In summary, extant research has delineated a framework in which transformational leadership affects young lecturers' innovation through multiple mediating pathways, while individual characteristics set important boundary conditions. Not only is transformational leadership positively correlated with innovation outcomes, but it also predicts them via mediators such as motivation, institutional culture, and psychological capital. Observed demographic variations in how lecturers perceive and respond to leadership and climate call for tailored interventions. Overall, these findings underscore the value of transformational leadership and situation-sensitive theoretical frameworks, as well as the need to establish support mechanisms attuned to the Chinese higher education context.

Conceptual Framework

Grounded in Bass and Avolio's (1985) Transformational Leadership Theory and Amabile's (1996) Componential Theory of Creativity and Innovation, this study proposes a conceptual model to examine the direct relationship between the core constructs. As illustrated in Figure 1, the multi-dimensional construct of Transformational Leadership is hypothesized to exert a significant positive influence on the multi-dimensional construct of Innovation Capacity among young lecturers. This framework establishes the primary hypothesis (H1) for empirical testing.

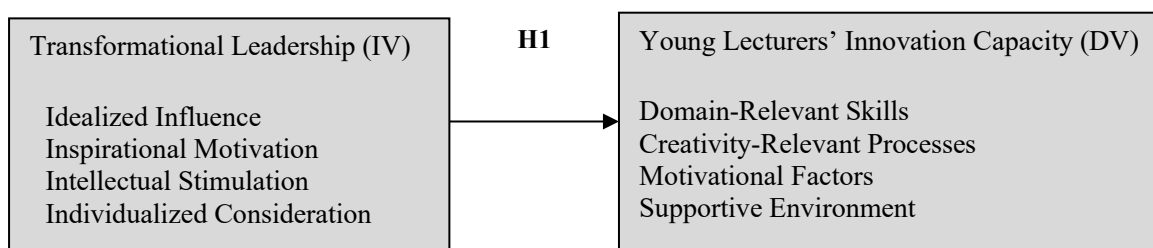


Figure 1: Conceptual Framework

Methodology

A sample of young lecturers in universities in Shandong province was used to explore the relationship between transformational leadership and innovative ability. According to Creswell and Creswell (2018), quantitative research is appropriate for investigations in which the objective is to measure variables and determine relationships with numerical data that will be analyzed statistically. Such method has allowed the analysis of patterns, associations and predictive relationships in a strict and unbiased way. A structured questionnaire served as the main instrument for collecting data, including Likert-scale questions to measure two major constructs of transformational leadership (stemming from a four-factor model by Bass and Avolio) and innovation capacity (inspired by Amabile's componential theory). With convenience sample method, the questionnaire gives to 100 young lecturers (young below than 35 years old) who come from all colleges and universities in Shandong Province. The data obtained were evaluated by descriptive statistics to describe participant information and general trends. To examine the strength and direction of the relationship between transformational leadership and innovation capacity, Pearson correlation tests were used. Multiple regression analysis was also used to further examine the predictive potential for leadership behaviors on innovation results. By adhering to Creswell and Creswell's (2018) methodology guide, the current study has conducted a rigorous and consistent analysis of the research questions that generates empirical findings for advancing knowledge in leadership and innovation literature within the higher education context.

The questionnaire, which was developed for this study, included items to assess Transformational Leadership and Innovation Capacity in terms of theory-based constructs (5-point Likert scale). Construct validity was established through expert testing, pilot testing and statistical analysis. As six experts in the fields of educational leadership and human resource management continued to achieve acceptable Content Validity Index (CVI) scores, all items reached a CVI score of 0.83 or above, with many tools achieving a perfect score of 1.00). The reliability was tested in a pilot study including 100 young lecturers in Shandong using Cronbach's alpha. The internal consistency was found to be excellent and yielded reliability coefficients of 0.923 for Transformational Leadership; 0.922 for Innovation Capacity with the overall scale alpha = 0.923. These findings provide evidence for the validity and reliability of the instrument measuring this specific set of constructs in higher education.

Results

This section is to answer research questions: (i) How do young lecturers perceive transformational leadership? (ii) How do young lecturers perceive the innovation capacity? (iii) What is the relationship between transformational leadership and innovation capacity among young lecturers? (iv) To what extent does transformational leadership predict innovation capacity among young lecturers? (v) How do gender, age, and educational background influence young lecturers' perceptions of transformational leadership and their innovation capacity?

Demographic

This section outlines the demographic profile of the respondents involved in the study includes gender, age group, type of university, and educational qualification.

Table 1: Demographic

		Respondents (N)	Percent (%)
Gender	Male	40	40%
	Female	60	60%
Education Qualification	Master	58	58%
	PhD	42	42%
Age Group	25-28 years	34	34%
	29-32 years	36	36%
	33-35 years	30	30%

Table 1 showed the demographic of the 100 respondents. The sample for females (60%) and males (40%). Regarding academic levels, 58% of them had a Master degree and the remaining 42% held or were attending to a PhD. Age The age distribution of the participants was fairly even across groups with 34% between 25–28 years old, 36% between 29–32 years and 30% between 33–35 years. The distribution represents a relatively balanced mix of male and female, between the different educational groups and groups based on their age.

Result 1: The Level of Transformational Leadership Practices as Perceived by Young Lecturers

This result outlines how young lecturers perceive transformational leadership in their institutions. Table 2 presents the mean scores across four dimensions: inspirational motivation, individualized consideration, intellectual stimulation, and idealized influence.

Table 2: Young Lecturers' Perceptions of Transformational Leadership

Transformational Leadership	Mean (M)	Std. Deviation (SD)
Inspirational Motivation	3.821	0.681
Individualized Consideration	3.635	0.703
Intellectual Stimulation	3.733	0.661
Idealized Influence	3.741	0.671
Average	3.737	0.679

Table 2 descriptive statistics of the perception of young lecturers on transformational leadership along four dimensions were as indicated. The results suggested that lecturers scored highest for Inspirational Motivation ($M = 3.821$, $SD = 0.681$), which suggests that lecturers generally perceived their leaders as who are able to motivate and can articulate a clear vision. Idealized Influence ($M = 3.741$, $SD = 0.671$), further indicating that leaders are role models with a strong sense of morality. Power sharing also received a somewhat high mean score ($M = 3.733$, $SD = 0.661$), this indicates that lectures have the opportunity to engage in creative and critical thinking. The lowest mean value was noticed for Individualized Consideration ($M = 3.635$, $SD = 0.703$), which is still moderately high, means that a proportion of lecturers feel less personalized mentorship support. The mean score for transformational leadership as a whole was 3.737 ($SD = 0.679$), indicating that young lecturers perceived a high level of transformational leadership practice in general, and with relatively even responses across each dimension.

The results show that young lecturers have positive perspective towards transformational leadership ($M = 3.737$) with Inspirational motivation is the highest mean ($M = 3.821$). Institutions' leaders are believed to be able to motivate and describe a convincing vision. The lower score on Individualized Consideration ($M = 3.635$) suggests that coaching and support are perhaps not generally as prevalent. This aligns with Kou et al. (2024) discovered that transformational leadership in Shandong universities has a significant effect on teachers' motivation through psychological contracts. It also aligns with Liu (2023) whose study showed that lecturers regard leaders as intellectually stimulating yet less effective at providing support tailored to the individual, highlighting a discord between grand institutional vision and personal development.

Result 2: The Level of Innovation Capacity Among Young Lecturers

This result highlights young lecturers' perceptions of their innovation capacity. Table 3 presents the mean scores across four dimensions: domain-relevant skills, creativity-relevant processes, motivational factors, and supportive environment.

Table 3: Young Lecturers' Perceptions of Innovation Capacity

Innovation Capacity	Mean (M)	Std. Deviation (SD)
Domain-Relevant Skills	3.452	0.681
Creativity-Relevant Processes	3.304	0.723
Motivational Factors	3.354	0.663
Supportive Environment	3.501	0.702
Average	3.403	0.692

Table 3 shows descriptive statistics of young lecturers' perceptions of innovation capacity along the four dimensions. The highest mean score was observed for the domain of Supportive Environment ($M = 3.501$, $SD = 0.702$), implying that respondents perceived their institutions offer a relatively supportive environment for innovation. This was slightly over Domain-Relevant Skills ($M = 3.452$, $SD = 0.681$), indicating that lecturers felt they had the necessary subject knowledge and expertise to facilitate innovative practices. However, Motivational Factors ($M = 3.354$, $SD = 0.663$) and Processes Relevant to Creativity ($M = 3.304$, $SD = 0.723$) scored relatively lower reflecting modest motivational level but suggesting that lecturers may have difficulty applying creativity-enhancing processes consistently to their academic work. For the innovation capacity, the total mean was 3.403 ($SD = 0.692$), indicating a general moderate level of innovation capacity among young lecturers in Shandong higher education institutions.

The results showed that the innovation capacity of young lecturers is at a moderate level ($M = 3.403$), Supportive Environment being rated highest with others following ($M = 3.501$). This is consistent with Amabile's argument that the external context is critical to the facilitation of creativity. Nevertheless, below-average scores in Creativity-Relevant Processes ($M = 3.304$) indicate that while lecturers might be supported institutionally, in terms of habits and skills or encouragement to engage regularly in creative thought they are not equipped. This is consistent with Wang et al. (2024) who pointed out significant factors influencing innovation ability at Chinese academic context on motivation and learning environment.

Result 3: To examine the relationship between transformational leadership and innovation capacity among young lecturers

This finding explores the relationship between transformational leadership and innovation capability in young lecturers. Figure 2 -The correlation matrix is drawn, which measures direction and strength of the association between two variables.

Figure: Correlation between Transformational Leadership and Innovation Capacity

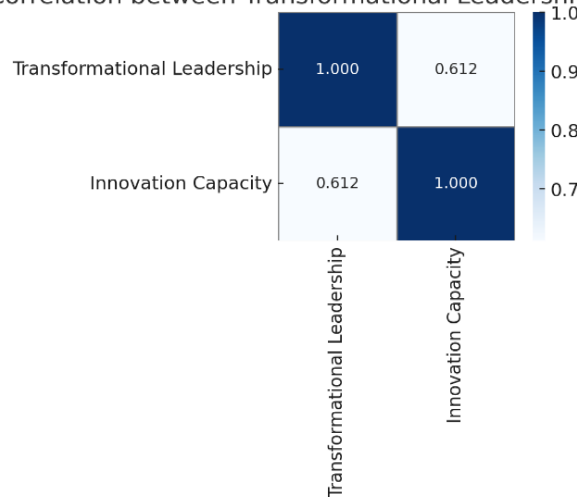


Figure 2: Correlation between Transformational Leadership and Innovation Capacity

Figure 2 showed the correlation matrix between transformational leadership and innovation capacity of young lecturer is. With $r = 0.612$, they share a moderate to strong positive correlation. Therefore, it can be said that higher levels of transformational leadership are positively linked to innovation capacity. The level of statistical significance ($p = 0.001$) indicates that the association is not coincidence and statistically significant.

There was a strong linear relationship ($r = 0.612, p < 0.001$) between transformational leadership and innovation capacity. This is consistent with the findings by Zuo et al. (2024) and Wang (2024), which have stressed that transformational leadership undermines innovation through the improvement of satisfaction, psychological capital and organization culture. In Amabile’s model, this refers to the leader influencing motivation and environment which favor creativity.

Result 4: The extent to which transformational leadership predicts innovation capacity

This result explores how well transformational leadership predicts young lecturers’ innovation capacity. Table 4 presents the regression model summary, indicating the variance in innovation capacity explained by transformational leadership.

Table 4: Model Summary of Regression: The Predictive effect of Transformational Leadership on Innovation Capacity

Model Summary of Regression				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.612	0.375	0.363	0.550

Table 4 showed the regression analysis results testing the predictive influence of transformational leadership on Innovation capacity for young lecturers. It follows that there is a moderately strong positive relationship between the variables which has been confirmed by the model with a correlation coefficient of $R = 0.612$. The R Square (R^2) of 0.375 means transformational leadership accounts for 37.5 percent of the variance in innovation capacity, and the adjusted $R^2 = .363$ indicates the model is fit after controlling for sample size. The standard error of the estimate (0.550) denotes a fairly small prediction error and hence our regression model is quite accurate. In general, the results show that transformational leadership is a clear antecedent of the innovation capacity among young university teachers.

The results of the regression model ($R^2 = 0.375$) indicate that transformational leadership represents a significant moderate predictor, explaining 37.5% of variance in innovation capacity. This result is consistent with that observed in Zhang and Karnjanapun (2025), where leadership behaviors contribute significantly to enhancing career adaptability and innovation skills among Chinese vocational institutions. The regression model also endorses the explanatory power of transformational leadership as suggested by Bass and Avolio's model especially with intellectual stimulation and inspirational motivation, which had a very high ranking in the present study.

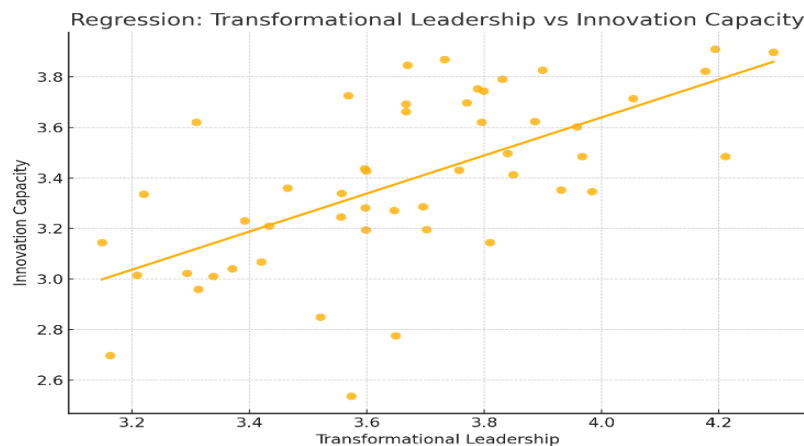


Figure 3: Transformational Leadership VS Innovation Capacity

Figure 3 showed the scatterplot with regression line shows the relationship between Transformational Leadership (x-axis) and Innovation Capacity (y-axis). The data points clearly form a positive linear trend, such that with higher degrees of transformational leadership innovation capacity increases. The regression line rises upwards, highly indicating the regression result ($R = 0.612$; $R^2 = 0.375$). Thus, the transformational leadership explains approximately 37.5% of the variation in innovation capacity. The distribution of points around the regression line implies that, overall, the model is a reasonably good fit with higher perceptions of leadership being associated with greater reported skills for innovation, motivation and supportive environments.

Result 5: Demographic factors, including gender, educational qualification, and age group, significantly influence perceptions of transformational leadership and innovation capacity

This result examines whether demographic factors shape young lecturers' perceptions. Table 5 presents the independent samples t-test results comparing gender differences in transformational leadership and innovation capacity.

Table 5: Independent Samples t-Test Results for Gender, Transformational Leadership and Innovation Capacity

Gender	N	Transformational Leadership		Innovation Capacity		t(df)	p-value
		Mean (M)	Standard Deviation (SD)	Mean (M)	Standard Deviation (SD)		
Male	40	3.685	0.169	3.324	0.210	t(98) = -1.44	.154
Female	60	3.738	0.200	3.394	0.186	t(98) = -1.69	.094

Table 5 summarizes the results of an independent samples t-test between male and female lecturers on perceptions of transformational leadership and innovation capacity. Male lecturers' mean for transformational leadership was 3.685 (SD = 0.169), whereas their female counterparts scored a slightly higher mean of 3.738 (SD = 0.200). However, the difference was non-significant ($t(98) = -1.44$, $p = .154$). For innovative capacity, male lecturers had a mean of 3.324 (SD = 0.210) and female lecturers scored an average of 3.394 (SD = 0.186). Once more, the distinction was not significant ($t(98) = -1.69$, $p = .094$). These results suggest that gender does not significantly affect transformational leadership and the innovation capacity of young lecturers of higher education institutions in Shandong.

Independent samples t-test per educational qualification. It is a contrast between transformational leadership and innovation capacity scores of Master's and PhD lecturers, to determine the difference in academic qualification as related to these two variables found in Table 6.

Table 6: Independent Samples t-Test Results for Education Qualification, Transformational Leadership and Innovation Capacity

Education Qualification	N	Transformational Leadership		Innovation Capacity		t(df)	p-value
		Mean (M)	Standard Deviation (SD)	Mean (M)	Standard Deviation (SD)		
Master	58	3.687	0.184	3.361	0.164	t(98) = -3.39	.001
PhD	42	3.809	0.171	3.408	0.228	t(98) = -1.15	.253

Table 6 shows the results of independent samples t test, which examined between those who have master's degree and those who have PhD with respect to perceptions regarding transformational leadership and innovation capacity. Regarding transformational leadership, whilst masters' degree holders had a mean of 3.687 (SD = 0.184), PhDs reported the highest score with a mean of 3.809 (SD = 0.171). The contrast is significant ($t(98) = -3.39$, $p = .001$), which could imply that lecturers with PhD degree perceived transformational leadership as higher in their schools. Mean of innovation capacity for Master's holders was 3.361 (SD =

0.164) and for PhD holders was slightly higher with a mean of 3.408 (SD = 0.228). Nonetheless, this effect was not significant ($t(98) = -1.15, p = .253$). These results imply that although educational level has a significant effect on perceptions of transformational leadership, but for the creativity perception does not have influence among young faculty members.

One-Way ANOVA The outcome of One-Way ANOVA for the differences among age groups in lecturers' perception toward transformational leadership and innovation capacity is presented in Table 7.

Table 7: One-Way ANOVA Results for Age Group, Transformational Leadership and Innovation Capacity

Dependent Variable	Source	df	F	p-value
Transformational Leadership	Between Groups	2	1.70	.188
	Within Groups	97		
Innovation Capacity	Between Groups	2	1.01	.369
	Within Groups	97		

Table 7 showed the result of One-Way ANOVA used to test whether age group affected young lecturers' perceptions of transformational leadership and innovation capacity. For transformational leadership, the results indicated $F(2,97) = 1.70, p = .188$, and thus no significant differences with regard to the perception of transformational leadership between the three age groups estimated (25–28; 29–32 and 33–35 years). The results for innovation capacity were equally nonsignificant ($F(2,97) = 1.01, p = .369$), indicating that lecturer innovativeness does not change significantly by age category. Taken together, these results indicate that generation is not a noticeable influence of young lecturers' cognition about transformational leadership and innovation in Shandong higher education institutions.

The demographic and frequency analysis showed that educational attainment has significantly influences the perception of transformational leadership ($p = .001$), and PhDs demonstrated greater levels of perception in comparison to Master's. That could mean more involvement with leadership structures or higher expectations by academic rank. No significant gender or cross-age differences actually emerged for perceptions of either innovation capacity or transformational leadership. This is in agreement with Wang et al. (2024) and Liang (2025), who argued that demographic differences can moderate perceptions, but these effects may be contingent on an institutional context and cultural norms.

Discussion

The primary objective of this study was to empirically investigate the relationship between transformational leadership and innovation capacity among young lecturers in Shandong Province, China. The findings provide strong support for the hypothesized positive and predictive relationship, thereby offering meaningful insights that warrant further interpretation within the specific context of this study.

Key Findings

The analysis revealed that young lecturers in Shandong hold positive perceptions of transformational leadership practices within their institutions ($M=3.737$). The dimension of Inspirational Motivation received the highest score ($M=3.821$), indicating that leaders are effectively articulating a compelling vision for the future. This is closely followed by strong scores in Idealized Influence ($M=3.741$) and Intellectual Stimulation ($M=3.733$), suggesting

that leaders are seen as credible role models and are successful in encouraging critical and innovative thinking among their staff. However, the notably lower score for Individualized Consideration ($M=3.635$) points to a relative weakness in providing personalized support and mentorship, a finding that aligns with Liu (2023), who also observed a shortfall in tailored developmental support in a similar context.

Regarding innovation capacity, the overall moderate level ($M=3.403$) suggests there is significant room for growth. The highest capacity was found in the Supportive Environment ($M=3.501$), implying that the institutional conditions for innovation are perceived favorably. In contrast, the lowest score was for Creativity-Relevant Processes ($M=3.304$), indicating that young lecturers may struggle with the consistent application of creative thinking and risk-taking in their daily academic work, despite feeling generally supported.

The core of this study's findings is the statistically significant, positive correlation ($r = 0.612$, $p < 0.001$) between transformational leadership and innovation capacity. This is substantiated by the regression analysis, which identified transformational leadership as a substantial predictor, explaining 37.5% of the variance in innovation capacity ($R^2 = 0.375$). This result strongly corroborates the findings of Zuo et al. (2024) and Wang (2024), confirming the pivotal role of leadership in fostering an innovative climate.

Theoretical and Contextual Integration

The results offer robust validation for the theoretical frameworks underpinning this research. The significant predictive power of transformational leadership, particularly through Intellectual Stimulation and Inspirational Motivation, directly supports the mechanisms described in Bass and Avolio's (1985) theory, where leaders motivate followers to achieve beyond expectations. Concurrently, the pattern of innovation capacity dimensions aligns with Amabile's (1996) Componential Theory. The strong performance of Supportive Environment highlights the critical role of the "social environment" component in Amabile's model, which transformational leaders effectively shape. Conversely, the lagging Creativity-Relevant Processes dimension suggests that while the environment and motivation (influenced by leadership) are in place, more direct interventions may be needed to enhance individual creative skills.

When contextualized within Chinese academia, the high scores on collective-oriented dimensions like Inspirational Motivation and Idealized Influence resonate with the cultural values of collectivism and hierarchical respect, where leaders are expected to provide clear direction and moral guidance. The lower score on Individualized Consideration, however, may reflect a cultural and systemic gap where personalized, one-on-one developmental leadership is not yet a matured practice compared to the emphasis on collective inspiration, highlighting an area for cultural adaptation of global leadership theories.

Conclusion

This study empirically examines the relationship between transformational leadership and the innovation capacity of young lecturers in universities in Shandong Province, China. The findings reveal that young lecturers generally hold positive perceptions of transformational leadership practices (mean = 3.737), with particularly high ratings for Inspirational Motivation (mean = 3.821) and Intellectual Stimulation (mean = 3.733). This indicates that institutional leaders are effectively communicating organizational vision and stimulating innovative thinking. However, the comparatively lower score in Individualized Consideration (mean =

3.635) highlights a significant deficiency in providing personalized guidance and support for young lecturers. Regarding innovation capacity, the Supportive Environment dimension scored highest (mean = 3.501), while Creativity-Relevant Processes were relatively underdeveloped (mean = 3.304), suggesting that young lecturers require further enhancement in systematic innovation methodologies and creative thinking skills. Notably, correlation and regression analyses demonstrated a significant positive relationship between transformational leadership and innovation capacity ($r = 0.612$), with transformational leadership explaining 37.5% of the variance in innovation capacity ($R^2 = 0.375$). These findings not only validate the applicability of Bass and Avolio's Transformational Leadership Theory in the Chinese higher education context but also provide empirical support for Amabile's Componential Theory of Creativity and Innovation.

Based on the research conclusions, we propose the following specific and actionable policy recommendations: First, higher education institutions should enhance the relevance and effectiveness of leadership development programs by focusing on improving administrators' capacity for Individualized Consideration. This can be achieved by establishing systematic mentorship programs and personalized career development support systems, conducting regular training in personalized coaching skills, and incorporating the effectiveness of individualized care into administrative performance evaluations. Second, education authorities should promote the establishment of an innovation-oriented institutional environment by explicitly integrating innovation capability into faculty promotion and tenure systems, creating special innovation funds for young faculty to provide stable financial support for innovative practices, and establishing interdisciplinary innovation platforms with regular workshops and academic salons on innovation methodologies. Finally, greater emphasis should be placed on the guiding role of Intellectual Stimulation by encouraging administrators to continuously stimulate young lecturers' innovative thinking through initiatives such as innovation challenge projects and interdisciplinary seminars, while creating more leadership opportunities for senior faculty with doctoral degrees to serve as important agents in disseminating transformational leadership practices.

The implementation of these recommendations requires coordinated efforts between university administrators and policy makers. By constructing a trinity support system encompassing "leadership development-institutional support-cultural cultivation," we can not only effectively enhance the innovation capacity of young faculty but also provide sustained momentum for the qualitative development of higher education. Future research could further investigate the differential mechanisms of transformational leadership across disciplinary contexts and the long-term trajectories of innovation capacity development, thereby providing richer empirical evidence for refining innovation policies in higher education. Additionally, we recommend expanding the scope of research samples and employing mixed-methods approaches to deeply explore the underlying mechanisms and boundary conditions of how transformational leadership influences innovation capacity.

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