

# LEADERSHIP IN HYBRID WORK TEAMS: IMPACT OF TRANSFORMATIONAL AND AUTHENTIC LEADERSHIP ON RELATIONSHIPS AND TASK PERFORMANCE IN STUDENT TEAMS



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## ABSTRACT

*Transformational and authentic leadership have caught researchers' attention, and it has gained recognition and position within leadership studies. This quantitative research aims to measure the correlation between leaders' transformational and authentic leadership in interpersonal relationships and task performance perceived by their hybrid work teams. For this quantitative research, four previously investigated and validated instruments were utilized: the Authentic Leadership Questionnaire (ALQ) Avolio et al. (2007), which has an acceptable internal consistency reported with Cronbach's alpha values ranging from .66 to .93; the Multifactor Leadership Questionnaire (MLQ-5X) Bass and Avolio (1994), known for its high reliability with a reported Cronbach's alpha of 0.71; the HQIR: High-Quality Interpersonal Relationships Questionnaire (Carmeli et al., 2009), which also exhibits high reliability with a reported Cronbach's alpha of 0.93; and the Individual Work Performance Questionnaire (IWPQ) Koopmans et al. (2011), with Cronbach's alpha values ranging from 0.77 to 0.83, and which will be used with a common translation into Latin American Spanish. Using a sample of 156 participants who are members of student hybrid teams (N = 156), the findings of this study demonstrated a positive correlation between transformational leadership and both interpersonal relationships and task performance in hybrid work teams. This study represents one of the first investigations of transformational and authentic leadership and its correlation with interpersonal relationships and task performance in Latin America, and it has some leadership implications within hybrid work teams.*

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## INTRODUCTION

The aim to understand the complexities of leadership has been significant. Scholars have framed leadership using different approaches to understand what makes leaders great, inspirational, and effective people. All these approaches have given special attention to traits, charisma, affective elements, and situations (Manning & Curtis, 2019; Hughes et al., 2019). The global situation of COVID-19 precipitated a crisis that impacted numerous industries and organizations worldwide (Suneson, 2020). According to the Office for National Statistics, COVID-19 has accelerated the trend of geographically distributed collaboration using hybrid work teams (Gebbing et al., 2024).

In April 2020, in Mexico, the Federal Government and the Ministry of Health declared a health emergency, suspending all non-essential activities, including classes at all educational levels, regardless of whether the institution was public or private. Sixty-six percent of Mexican SMEs also implemented remote work during the peak of the pandemic. Organizations were forced to adapt their work schemes to maintain operational strength and continue their functions. As a result, people began working from home, adjusting to a work model that had been little explored until that time. According to Donnelly and Patrinos (2021), 94% of students worldwide were affected as well by the closure of educational institutions, leading them to study and participate in curricular activities from home for extended periods. Consequently, various work methods were introduced, such as the use of hybrid teams and remote and hybrid work. This is now known as the new

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normal, referring to new ways of maintaining a productive life while adapting to new health and safety measures. This is the case with hybrid teams, which “were already used before the pandemic because they help overcome the limitations of space and time” (Lilian, 2014).

Hybrid work teams have become increasingly relevant in the workplace due to the Covid-19 pandemic. This modality combines the flexibility of working from home with working from the physical office space. According to a survey published by Statista (2023), by 2022, 93.8% of the population in Mexico used the Internet to communicate through digital platforms, including Zoom, Google Meet, and WhatsApp. Additionally, 83.3% of the Mexican population used the Internet to access educational and training content through various formats, such as videos (49%), interactive platforms (49%), and virtual meetings via technological platforms (38%). Montes (2019) notes that while companies have faced the challenge of investing financial and technological resources to adapt to hybrid work, the more significant challenge lies in supporting leaders to manage their teams effectively in this remote context while continuing to meet their objectives.

As a result, leaders are confronted with new challenges in managing their teams, which significantly affect their leadership effectiveness and, in turn, directly influence team performance and interpersonal dynamics. Considering the above, this quantitative study examines the correlation between transformational and authentic leadership and their impact on interpersonal relationships and task performance within hybrid teams, explicitly focusing on leaders in higher education and student hybrid work teams.

The structure of this paper is organized as follows: It commences with a comprehensive literature review encompassing transformational leadership, authentic leadership, interpersonal relationships, task performance, and hybrid work teams, culminating in the formulation of two hypotheses. Subsequently, the paper details the materials and methods employed in the study, followed by a thorough presentation of the results, and concludes with a critical discussion of the findings and their implications.

## LITERATURE REVIEW

### Transformational Leadership

Leadership is recognized as a dynamic process of exerting influence and guiding others. Within the broader field of leadership studies, transformational and authentic leadership have garnered significant recognition as key frameworks for understanding leadership effectiveness. The following sections provide a literature review of these leadership approaches, exploring their core components, theoretical underpinnings, and their impact on various organizational and interpersonal outcomes.

During the early 80s, the transformational leadership approach appeared in the leadership field, and it was argued that leadership is a process that develops followers. The concept of transformational leaders began with research by James MacGregor Burns and his book titled *Leadership*. Burns (1978) distinguishes between two general types of leadership: a) the transactional and b) the transformational. The first approach centres on "the exchanges between leaders and their followers" (Northouse, 2022; Rosch & Collins, 2017; Sultana et al., 2021). In contrast, transformational leadership emphasizes the leader's engagement with others, fostering a unique connection "that elevates the level of motivation and morality in both the leader and the follower". Kilag et al. (2024) state that transformational leaders can positively impact organizational performance.

Transformational leadership includes four dimensions: (a) idealized influence, which refers to the level of trust, respect, and confidence the LeaderLeader has in their subordinates; (b) inspirational motivation, which pertains to the extent to which the LeaderLeader provides a vision to help others focus on their work; (c) intellectual stimulation, which describes the extent to which the LeaderLeader encourages others to seek innovative solutions to existing problems; and (d) individualized consideration, which measures the degree to which the LeaderLeader shows interest in the well-being of others. From this view, transformational leaders embodied four behaviours: (a) idealized influence, (b) individualized consideration, (c) intellectual stimulation, and (d) inspirational motivation (Bass, 1999; Bass & Avolio, 2006; Northouse, 2022). Transformational leadership inspires and motivates followers to achieve their goals (Kilag et al., 2024). According to Rojak et al. (2024), transformational leaders focus on achieving organizational goals and encouraging and inspiring employees to reach their full potential.

Purvanova and Bono (2009) found that transformational leadership is precious in virtual settings and has a stronger correlation with team performance. Their empirical study involving 255 undergraduate students discovered that leaders who adapted by increasing their transformational behaviors in virtual work teams achieved higher overall team performance. Mencl et al. (2016) investigated the effects of interpersonal abilities on transformational leadership in the workplace. Their empirical study involving 278 employees assessed both transformational leadership behaviors and interpersonal skills. The findings revealed a positive correlation between interpersonal abilities and transformational leadership. Recent empirical research by Gusti et al. (2024) underscores the positive impact of transformational leadership on employee performance. The study focused on Javanese tea distributors, utilizing a quantitative approach to gather data from 115 respondents via questionnaires. The findings reveal a significant correlation between transformational leadership and enhanced employee performance.

### Hybrid Work Teams

Hybrid work teams consist of both co-located and remote members who collaborate towards a shared objective, utilizing a combination of virtual and in-person interactions for effective coordination (Neumayr et al., 2021). With technological advancements, hybrid work teams have become integral to organizational work methodologies. Additionally, the impact of the COVID-19 pandemic accelerated the adoption of virtual and hybrid teams, turning it into a necessity, and this trend is expected to continue (Depoo & Hyršlová, 2022). For this research, we use the definition of virtual teams proposed by

Dulebohn and Hoch (2017), which describes virtual and hybrid teams as work arrangements where team members are geographically dispersed, have limited face-to-face contact, and work interdependently through electronic communication methods to achieve common goals. Additionally, the term may also refer to regional rather than global teams. In this context, some or all team members may work from home or other locations (Klonek et al., 2022).

Some advantages of virtual and hybrid work teams include the ability to assemble teams that maximize expertise by including geographically dispersed members and reduce costs and travel time. On the other hand, some disadvantages include challenges in communication and collaboration, difficulties in building trust and shared responsibility among team members, and issues with monitoring and managing virtual teams (Dulebohn & Hoch, 2017).

Hybrid work teams integrate remote and in-person activities, characterized by varying levels of synchronicity (Neumayr et al., 2021). Recent trends show that employees are increasingly embracing hybrid work models, aiming to leverage the advantages of both virtual and face-to-face interactions. These arrangements offer a flexible environment that empowers individuals from diverse locations to maximize their creative potential. For this research, we will use the definition of hybrid work proposed by Cook et al. (2020), which defines the term as the combination of physical and remote work arrangements within a workplace or organization. Additionally, this term may also refer to the various work styles adopted by members of an organization. However, some things could be improved when implementing this type of work model. One such issue is the risk of isolation and marginalization of employees. Chernyak-Hai and Rabenu (2018) note that "hybrid work may face challenges related to interaction, particularly in terms of sharing ideas and solutions".

*H<sub>1</sub>: There is a positive correlation between transformational leadership and interpersonal relationships and task performance in hybrid work teams.*

### **Authentic Leadership**

An exhaustive review of leadership studies over the past 50 years reveals scholars' efforts to identify the defining characteristics or personality traits of individuals who have significantly impacted their organizations and communities. However, these studies have not been able to delineate a singular profile of an ideal leader or member. The authentic leadership approach appeared in this new millennium, which "focuses on whether leadership is genuine and real" (Northouse, 2022).

Authentic leaders act on that awareness by practising their values and principles, sometimes at substantial risk to themselves. They carefully balance their motivations so that they are driven by these inner values as much as by a desire for external rewards or recognition. Authentic leaders also have a strong support team (George et al., 2007).

Authentic leadership has attracted researchers' attention and has established a notable presence within leadership studies. The construct of authentic leadership comprises four dimensions: (a) self-awareness, which pertains to leaders' understanding of their strengths and weaknesses and the motives they disclose to others; (b) Balanced processing, which involves leaders analyzing all relevant information before making a decision; (c) internalized moral perspective, which refers to leaders making decisions guided by personal values and high ethical standards; and (d) relational transparency, which describes leaders being open in presenting their true selves to others.

"Self-awareness is based on a leader's multifaceted nature, self-recognition, and strengths and weaknesses. Internalized moral perspective means harmonising with one's values, preferences and needs. Balanced processing involves a multifaceted and balanced evaluation of information and an unbiased analysis of all relevant data before deciding. Moreover, relational transparency means that the LeaderLeader is genuine in their close relations" (Dirik & Seren Intepeler, 2024).

Zhang et al. (2022) explored the impact of authentic leadership on virtual team performance, focusing on the mediating role of high-quality interpersonal relationships and the moderating effect of task interdependence. The findings demonstrate that authentic leadership positively influences virtual team performance, with high-quality interpersonal relationships serving as a mediator in this relationship. This study deepens the understanding of how authentic leadership affects virtual teams, contributing valuable insights into enhancing leadership effectiveness in hybrid environments. Nikbakhsh (2022) surveyed to explore the effects of authentic leadership on the performance of employees in fully and partially remote environments. The author gathered data through an online survey targeting volunteer employees from two software development firms in Estonia. This data was collected via questionnaires and analyzed using quantitative methods. The findings indicate that authentic leadership significantly influences job performance among remote workers, highlighting the positive relationship between these factors in remote work settings.

### **Interpersonal Relationships**

Carmeli et al. (2009) state that interpersonal relationships provide a conducive framework for collaboration and idea exchange and create a psychological environment that fosters a willingness to learn. When individuals feel valued and connected with other team members, they are more motivated to learn and improve their job performance. The definition of interpersonal relationships used in this study is provided by Carmeli (2003), who describes high-quality relationships as defined by the type of connection between two or more individuals, based on the quality of communication and the level of trust and mutual support. For this research, the variables of connectivity, positive connection, and mutuality, which are components of this concept, will be measured.

According to Gross (2018) and Hoch and Kozlowski (2014), leadership is a crucial factor in enhancing the performance of hybrid teams. Zhang et al. (2022) conducted a study in China involving 90 hybrid teams comprising 388 members and 90 leaders. They administered the "High-Quality Interpersonal Relationships" (HQIRs) questionnaire

developed by Carmeli (2003). The study examined how authentic leadership can impact virtual team performance, focusing on the mechanisms involved through high-quality interpersonal relationships and task interdependence. The findings revealed that authentic leadership positively affects virtual team performance, and high-quality interpersonal relationships mediate the relationship between authentic leadership and virtual team performance. An indirect relationship between authentic leadership and hybrid team performance through high-quality interpersonal relationships was also identified.

### **Task Performance**

An increasing number of workplaces offer the option to work in hybrid teams. However, there is still an ongoing debate about how this arrangement impacts team members' performance. Challa and Perwez (2023) argued that "leadership plays a critical role in shaping organizational performance."

There are three dimensions of the Individual Work Performance Questionnaire (IWPQ) Koopmans et al. (2019): task performance, contextual performance, and counterproductive work behaviour. For this research, we will use five items of the IWPQ, which measure the dimension of task performance. Task performance refers to "behaviours that contribute to producing a good or providing a service" (Rotundo & Sackett, 2002). According to Koopmans et al. (2011), this includes completing work tasks, maintaining up-to-date knowledge, working with precision and cleanliness, planning, organizing, and problem-solving, among others.

*H<sub>2</sub>: There is a positive correlation between authentic leadership and interpersonal relationships and task performance in hybrid work teams.*

## **MATERIALS AND METHODS**

The purpose of this section is to describe the methodology employed to test whether there is a correlation between transformational and authentic leadership as practised by leaders and their impact on interpersonal relationships and perceived task performance among team members in hybrid teams (as reported by the group members) within the student organizations context. This study involved two independent variables (transformational leadership and authentic leadership), two dependent variables (interpersonal relationships and performance in virtual teams), and three control variables (gender, age, and tenure of the employee). This quantitative study addresses the following research question (Creswell, 2009): Is there a correlation between transformational and authentic leadership practised by leaders and its impact on interpersonal relationships and perceived task performance among team members in hybrid teams?

### **Instrumentation**

For this quantitative research, four previously investigated and validated instruments were utilized: the Authentic Leadership Questionnaire (ALQ) Avolio et al. (2007), which has an acceptable internal consistency reported with Cronbach's alpha values ranging from .66 to .93; the Multifactor Leadership Questionnaire (MLQ-5X) Bass and Avolio (1994), known for its high reliability with a reported Cronbach's alpha of 0.71; the HQIR: High Quality Interpersonal Relationships Questionnaire, Carmeli et al. (2009), which also exhibits high reliability with a reported Cronbach's alpha of 0.93; and the Individual Work Performance Questionnaire (IWPQ) Koopmans et al. (2011), with Cronbach's alpha values ranging from 0.77 to 0.83, and which will be used with a standard translation into Latin American Spanish.

In this way, this study used a questionnaire that helped measure and analyze the effect of transformational and authentic leadership on the team members' interpersonal relationships and task performance. The questionnaire contained a total of 57 items, and it incorporated the ALQ, which has 16 items; the MLQ-5X, which has 20 items; the HQIR, which has 12 rated items; and the IWPQ, which we used 5 items to measure the task performance variable and 4 items to measure control variables. The ALQ and the MLQ-5X are already translated into Spanish, so the current study invited two professors/experts to examine the HQIR and IWPQ to ensure the appropriate translation, vocabulary, and order/structure of the instrument's questions into Spanish.

### **Data Collection Procedure**

The data collection for this quantitative and non-experimental study involved using surveys to "provide a quantitative or numerical description of a trend and attitudes within a population by studying a sample of that population" (Creswell, 2009). Once sufficient responses were collected and the data collection period ended, all sample data were imported into SPSS Statistics 21.0 using fictitious codes for analysis. The following steps were used to analyze the data:

1. Reporting control variables: the control variables from the survey, such as gender, age, and tenure at the Student Leadership Center, were reported.
2. Descriptive analysis: A descriptive analysis was performed after conducting convergence tests for each instrument and normality tests for the study. Results were presented in tables displaying frequencies and percentages.
3. Internal consistency: the internal consistency (Cronbach's alpha scores) of the four scales used in the sample was reported.
4. Correlation analysis: the independent variables (transformational leadership and authentic leadership) were correlated with the dependent variables (interpersonal relationships and task performance in virtual teams) using Spearman's correlation to identify whether there were small, medium, or firm correlations.
5. Regression analysis: The assumptions of normality and homogeneity of variance were tested. To address Hypothesis 1, a hierarchical multiple regression analysis was conducted to examine the effect of transformational leadership on interpersonal relationships and performance in virtual teams (first model). Subsequently, to address



Hypothesis 2, a hierarchical multiple regression analysis was performed to analyze the effect of authentic leadership on interpersonal relationships and performance in virtual teams (second model).

6. **Statistical significance:** Tables indicated whether the results were statistically significant. Inferential statistics were used to assess the reliability of the findings, validate the two hypotheses, and reject the null hypotheses. The minimum acceptable alpha level for validating the research was set at .05 (two-tailed) to declare the study statistically significant.
7. **Data interpretation:** Interpretations of the data were presented, detailing how the results supported or did not support the two hypotheses of the study.
8. **Implications and future research:** The possible implications of the results for practical considerations and future research were discussed and explained.

## RESULTS

This research required a minimum of 105 and 140 surveys to achieve statistical power and potential generalizability of the study's findings (Hair et al., 2009). This sample size is considered adequate and robust for an analysis involving two independent variables (IVs), two dependent variables (DVs), and three control variables (CVs). During the study, 156 surveys were collected.

The sample composition included 121 women (78%) and 35 men (22%). Among the participants, 115 (74%) viewed their LeaderLeader as the president or chairperson of their student group, while 41 (26%) considered their LeaderLeader as the coordinator or facilitator of the Student Leadership Center (CELES). Regarding age, 62% of the participants (96 cases) were between 17 and 20 years old, while the remaining 38% (60 cases) were between 21 and 24 years old. Regarding tenure as members of CELES, 67% (105 cases) had been part of a student group for one year or less, 19% (30 cases) had been members for more than one year but less than two years and only 14% (21 cases) had been members for more than two years. Table 1 details the control variables: the participants' gender, the LeaderLeader they refer to, the respondents' age, and their tenure in student organizations.

Table 1. Control variables: Gender, the LeaderLeader they Refer to, Age, and Tenure (N = 156).

Variables	n	%
Gender		
Men	35	22
Women	121	78
The LeaderLeader they refer to		
President of the Student Organization	115	74
Staff of the Student Leadership Center	41	26
Age		
17-20	96	62
21-24	60	38
Tenure		
1 day - 1 year	105	67
1 year 1 month - 2 years	30	19
2 years and more	21	14

Source: Information obtained from the authors using the study results.

### Reliability Analysis

The Cronbach's alpha was used to examine the reliability and internal consistency of the four instruments used in this study: ALQ (Authentic Leadership), MLQ-5X (Transformational Leadership), HQIR (High-Quality et al.), and IWPQ (Individual Work Performance Questionnaire). The Cronbach's alpha ( $\alpha$ ) for Authentic Leadership is  $\alpha = 0.95$ , for Transformational Leadership is  $\alpha = 0.97$ , for High-Quality Interpersonal Relationships is  $\alpha = 0.94$ , and for Individual Work Performance is  $\alpha = 0.83$ . The instruments' reliability is confirmed since Cronbach's alpha ( $\alpha$ ) for each mentioned variable is above 0.60. The results are presented in Table 2.

Table 2. Reliability Analysis, Alfa Cronbach ALQ, MLQ, HQIR y IWPQ (N = 156)

Instrument	Variable	Alfa Cronbach $\alpha$
ALQ	Authentic leadership	$\alpha = 0.95$
MLQ-5X	Transformational leadership	$\alpha = 0.97$
HQIR	Interpersonal relationships	$\alpha = 0.94$
IWPQ	Task performance	$\alpha = 0.83$

Source: Information obtained from the authors using the study results.

A normality test assessed the data distribution for each studied variable. The Kolmogorov-Smirnov statistical test was used. The results of the test indicated that the analyzed variables do not follow a normal distribution ( $p < 0.05$  in all cases), suggesting the need for a non-parametric (non-linear) test. Authentic Leadership, Transformational Leadership, Interpersonal Relationships, and Task Performance all showed a level of significance ( $p \leq 0.001$ ). Therefore, the statistical and correlation procedures will be carried out using Spearman's correlation. The results are presented in Table 3.

Table 3. Normality Test Kolmogorov Smirnov (N = 156).

Variable	p	Interpretation
Authentic leadership	<0.001	No parametrics
Transformational leadership	<0.001	No parametrics
Interpersonal relationships	<0.001	No parametrics
Task performance	<0.001	No parametrics

Source: Information obtained from the authors using the study results.

### Convergence Analysis

A Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was conducted to assess the suitability of the data for analysis. All factor loadings demonstrated valid KMO values ( $KMO > 0.5$ ). The results were as follows: Authentic Leadership ( $KMO = 0.942$ ), Transformational Leadership ( $KMO = 0.951$ ), Interpersonal Relationships ( $KMO = 0.935$ ), and Task Performance ( $KMO = 0.828$ ). The results are presented in Table 4.

Table 4. Convergence Analysis, Kaiser Meyer Olkin Measure of Sampling KMO (N = 156).

Variables	KMO
Authentic leadership	0.942
Transformational leadership	0.951
Interpersonal leadership	0.935
Task performance	0.828

Source: Information obtained from the authors using the study results.

### Descriptive Statistics and Correlations

Descriptive statistical procedures and bivariate correlation analyses were conducted for the four variables of the study: authentic leadership, transformational leadership, interpersonal relationships, and task performance. Spearman's correlation analysis revealed the following results: Authentic leadership and perceived interpersonal relationships showed a moderate positive correlation ( $r = 0.598$ ,  $p \leq 0.001$ ). Authentic leadership and perceived performance exhibited a moderate positive correlation ( $r = 0.400$ ,  $p \leq 0.001$ ). Transformational leadership and perceived interpersonal relationships demonstrated a strong positive correlation ( $r = 0.668$ ,  $p \leq 0.001$ ). Transformational leadership and perceived performance had a moderate positive correlation ( $r = 0.512$ ,  $p \leq 0.001$ ). Table 5 presents the descriptive statistics and correlations for authentic leadership in relation to the study variables. Table 6 shows the descriptive statistics and correlations for transformational leadership concerning the study variables.

Table 5. Descriptive Statistics and Correlations, Authentic Leadership, Spearman (N = 156).

Variables	R	p	Spearman
Interpersonal relationships	0.598	$=< 0.001$	Positive moderate correlation
Task performance	0.400	$=< 0.001$	Positive moderate correlation

Source: Information obtained from the authors using the study results.

Table 6. Descriptive Statistics and Correlations, Transformational Leadership, Spearman (N = 156).

Variables	R	p	Interpretación Spearman
Interpersonal relationships	0.668	$=< 0.001$	Positive strong correlation
Task performance	0.512	$=< 0.001$	Positive moderate correlation

Source: Information obtained from the authors using the study results.

### Hierarchical Multiple Regression

A hierarchical multiple regression analysis was conducted to test the hypotheses to determine the variability between factor loadings. Authentic leadership accounted for 57% of the variance in interpersonal relationships ( $R^2 = 0.57$ ,  $p = 0.001$ ). Additionally, authentic leadership accounted for 36% of the variance in task performance ( $R^2 = 0.36$ ,  $p = 0.001$ ). To test the second hypothesis, a hierarchical multiple regression analysis revealed that transformational leadership accounted for 61% of the variance in interpersonal relationships ( $R^2 = 0.61$ ,  $p = 0.001$ ). Transformational leadership also accounted for 44% of the variance in performance ( $R^2 = 0.43$ ,  $p = 0.001$ ). When examining the combined effect of both authentic and transformational leadership, these variables together explained 62% of the variance in interpersonal relationships ( $R^2 = 0.62$ ,  $p = 0.001$ ) and 44% of the variance in performance ( $R^2 = 0.44$ ,  $p = 0.001$ ). Table 7 summarizes the results of the hierarchical multiple regression analysis.

Table 7. Hierarchical Multiple Regression (N = 156).

Items	R <sup>2</sup>	%	p
<b>Authentic Leadership</b>			
Interpersonal relationships	0.57	57%	0.001
Task performance	0.36	36%	0.001
<b>Transformational Leadership</b>			
Interpersonal relationships	0.61	61%	0.001

Task performance	0.43	44%	0.001
<b>Authentic and Transformational Leadership</b>			
Interpersonal relationships	0.62	62%	0.001
Task performance	0.44	44%	0.001

Source: Information Obtained From The Authors Using The Study Results.

## DISCUSSIONS

The findings of this study supported both hypotheses, demonstrating a positive correlation between transformational leadership and both interpersonal relationships and performance in hybrid teams. Additionally, there is a positive correlation between authentic leadership and both interpersonal relationships and task performance in hybrid teams. Hypotheses 1 and 2 were confirmed through hierarchical multiple regressions, establishing a positive relationship between transformational and authentic leadership and interpersonal relationships and performance.

Firstly, the findings of this study align with previous research on transformational leadership and its positive impact on interpersonal relationships and task performance. For instance, the study titled *“Transformational Leadership and Performance: An Experimental Investigation of the Mediating Effects of Basic Needs Satisfaction and Work Engagement”* (Kovjanic et al., 2013) demonstrated a direct and positive relationship between transformational leadership and interpersonal relationships ( $\beta = .77$ ,  $p = .001$ ). Similarly, the study revealed a positive relationship between transformational leadership and task performance ( $\beta = .64$ ,  $p = .001$ ).

Secondly, the results of this study regarding authentic leadership and its positive impact on interpersonal relationships and task performance corroborate previous research. For example, the study *“Enhancing Virtual Team Performance via High-Quality Interpersonal Relationships: Effects of Authentic Leadership”* (Zhang et al., 2022) illustrated a direct and positive relationship between authentic leadership and interpersonal relationships ( $R^2 = 0.498$ ,  $p = .01$ ). Additionally, the study showed a positive relationship between authentic leadership and task performance ( $R^2 = .295$ ,  $p = .01$ ).

This quantitative research documented how behaviors aligned with authentic and transformational leadership predict and enhance interpersonal relationships and task performance among members of virtual teams. However, this study has strengths and limitations like any research design. Strengths: The study employed a comprehensive methodology, including multiple validated instruments and statistical analyses, to ensure robust results. With 156 surveys collected, the sample size was adequate for statistical power and generalizability. The hypotheses were clearly defined, focusing on the relationships between transformational and authentic leadership, interpersonal relationships, and task performance. Given the increasing prevalence of remote work, the study's focus on hybrid teams is highly relevant in the current context.

This research is the first study on authentic and transformational leadership in Mexico, which is applied to and directed at higher education students working in hybrid teams. The primary strength was that the findings demonstrated a moderate positive relationship between authentic and transformational leadership constructs and both dependent variables: interpersonal relationships and task performance in hybrid teams.

## CONCLUSIONS

This study sought to evaluate the impact of authentic and transformational leadership on two critical variables: task performance and interpersonal relationships, with a particular emphasis on leaders within higher education and student hybrid work teams.

This quantitative research presented significant findings that other colleagues, researchers, and scholars might consider when exploring and analyzing authentic and transformational leadership and its relationship with task performance and interpersonal relationships within hybrid teams. First, building on this study's insights into how authentic and transformational leadership positively impacts task performance and interpersonal relationships, academics and future researchers should continue to explore and assess authentic and transformational leadership within the Mexican context using different samples, such as businesses and organizational settings. These samples provide an opportunity to compare the results of the current study with future findings emerging from these diverse and robust samples.

Future researchers may expand their focus by exploring and linking the effects of authentic and transformational leadership to other variables such as organizational behaviour, organizational commitment, follower satisfaction, organizational climate, trust in the leader, job satisfaction, structural empowerment, collective efficacy, group performance, employee innovation, organizational trust, and positive psychological capital.

Future researchers might also consider using qualitative or mixed methods better to understand the effects of authentic and transformational leadership. Finally, due to the need for more empirical results on authentic and transformational leadership and its outcomes, future researchers aiming to assess the effects of these leadership styles on other variables using quantitative methods should continue employing reliable and validated instruments to enhance the current knowledge and understanding of authentic and transformational leadership.

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## REFERENCES

- Avolio, B., Gardner, W., & Walumbwa, F. (2007). *Authentic Leadership Questionnaire Instrument and Scoring Guide English (Self and Rater Forms) Spanish-LA Common (Rater Form only)* (pp. 6–7).
- Bass, B. M. (1999). Two decades of research and development in transformational leadership. *European journal of work and organizational psychology*, 8(1), 9–32. <https://doi.org/10.1080/135943299398410>
- Bass, B. M., & Avolio, B. J. (2006). *Manual for the Multifactor Leadership Questionnaire*. Consulting Psychologist Press.
- Bass, B. M., & Avolio, B. J. (1994). *Improving organizational effectiveness through transformational leadership*. Sage Publications.
- Burns, J. M. (1978). *Leadership*. Harper and Row.
- Carmeli, A. (2003). The relationship between emotional intelligence and work attitudes, behavior and outcomes: An examination among senior managers. *Journal of Managerial Psychology*, 18(8), 788–813. <https://doi.org/10.1108/02683940310511881>
- Carmeli, A., Brueller, D., & Dutton, J. E. (2009). Learning behaviours in the workplace: The role of high-quality interpersonal relationships and psychological safety. *Systems Research and Behavioral Science: The Official Journal of the International Federation for Systems Research*, 26(1), 81–98. <https://doi.org/10.1002/sres.932>
- Challa, J., & Perwez, S. K. (2023). Influence of leadership styles of women entrepreneurs on their psychological wellbeing. *Journal of Law and Sustainable Development*, 11(4), e903–e903. <https://doi.org/10.55908/sdgs.v11i4.903>
- Chernyak-Hai, L., & Rabenu, E. (2018). The new era workplace relationships: Is social exchange theory still relevant? *Industrial and Organizational Psychology*, 11(3), 456–481. <https://doi.org/10.1017/iop.2018.5>
- Cook, J., Mor, Y., & Santos, P. (2020). Three cases of hybridity in learning spaces: Towards a design for a zone of possibility. *British Journal of Educational Technology*, 51(4), 1155–1167. <https://doi.org/10.1111/bjet.12945>
- Creswell, J. W. (2009). Mapping the field of mixed methods research. *Journal of mixed methods research*, 3(2), 95–108. <https://doi.org/10.1177/1558689808330883>
- Depoo, L., & Hyršlová, J. (2022). Innovative approaches to management of virtual teams leading to reliability and retention. *Quality Innovation Prosperity*, 26(3), 37–52. <https://doi.org/10.12776/qip.v26i3.1734>
- Dirik, H. F., & Seren Intepeler, S. (2024). An authentic leadership training programme to increase nurse empowerment and patient safety: A quasi-experimental study. *Journal of Advanced Nursing*, 80(4), 1417–1428. <https://doi.org/10.1111/jan.15926>
- Donnelly, R., & Patrinos, H. A. (2021). Learning loss during COVID-19: An early systematic review. *Prospects*, 51(4), 601–609. <https://doi.org/10.1007/s11125-021-09582-6>
- Dulebohn, J. H., & Hoch, J. E. (2017). Virtual teams in organizations. *Human resource management review*, 27(4), 569–574. Retrieved from <https://daneshyari.com/article/preview/5033606.pdf>
- Gebbing, P., Bosbach, J., Helms, M., Umel, A., & Lattemann, C. (2024). Blending the Best? Fostering Creativity in Hybrid Teams. *ECIS 2024 Proceedings*, 18. Retrieved from [https://aisel.aisnet.org/ecis2024/track09\\_coghbis/track09\\_coghbis/18](https://aisel.aisnet.org/ecis2024/track09_coghbis/track09_coghbis/18)
- George, B., Sims, P., McLean, A. N., & Mayer, D. (2007). Discovering your authentic leadership. *Harvard Business Review*, 85(2), 129–157.
- Gusti, R. P., Wangi, P. S., Nofiantari, P., Hardjowikarto, D., & Kartono, K. (2024). The influence of transformational leadership and organizational commitment on employee performance of tea distributors. *Indonesian Journal of Multidisciplinary Science*, 3(9), 1–10. <https://doi.org/10.55324/ijoms.v3i9.894>
- Gross, R. (2018). Connecting the links between leadership styles and virtual team effectiveness. *Journal of Enterprising Culture*, 26(2), 185–205. <https://doi.org/10.1142/S0218495818500073>
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2009). *Multivariate data analysis: Global edition* (7th ed.). Pearson Education.
- Hoch, J. E., & Kozlowski, S. W. J. (2014). Leading virtual teams: Hierarchical leadership, structural supports, and shared team leadership. *Journal of Applied Psychology*, 99(3), 390–403. <https://doi.org/10.1037/a0030264>
- Hughes, R. L., Ginnett, R. C., & Curphy, G. J. (2019). *Leadership: Enhancing the lessons of experience* (9th ed.). McGraw-Hill Education.
- Kilag, O. K., Malbas, M., Nengasca, M. K., Longakit, L. J., Celin, L., Pasigui, R., & Valenzona, M. A. V. (2024). Transformational Leadership and Educational Innovation. *International Multidisciplinary Journal of Research for Innovation, Sustainability, and Excellence (IMJRIS)*, 1(1), 110–114.
- Kovjanic, S., Schuh, S. C., & Jonas, K. (2013). Transformational leadership and performance: An experimental investigation of the mediating effects of basic needs satisfaction and work engagement. *Journal of Occupational and Organizational Psychology*, 86(4), 543–555. <https://doi.org/10.1111/joop.12022>
- Koopmans, L., Bernaards, C. M., Hildebrandt, V. H., Schaufeli, W. B., de Vet, H. C. W., & Van der Beek, A. J. (2011). Conceptual frameworks of individual work performance. *Journal of Occupational and Environmental Medicine*, 53(8), 856–866. <https://doi.org/10.1097/JOM.0b013e318226a763>



- Koopmans, L., Ramos-Villagrasa, P., Barrada, J., & Fernández-del-Río, E. (2019). La evaluación del desempeño en el trabajo con escalas de autoinforme breves: El cuestionario de desempeño laboral individual. *Journal of Work and Organizational Psychology*, 35(3), 195-205. <https://doi.org/10.5093/jwop2019a21>
- Klonek, F. E., Kanse, L., Wee, S., Runneboom, C., & Parker, S. K. (2022). Did the COVID-19 lock-down make us better at working in virtual teams?. *Small Group Research*, 53(2), 185-206. <https://doi.org/10.1177/10464964211008991>
- Lilian, S. C. (2014). *Virtual teams: Opportunities and challenges for e-leaders*. *Procedia - Social and Behavioral Sciences*, 110, 1251-1261. <https://doi.org/10.1016/j.sbspro.2013.12.972>
- Manning, G., & Curtis, K. (2019). *The Art of Leadership (6<sup>th</sup> Edition)*. McGraw-Hill Education.
- Mencl, J., Wefald, A. J., & van Ittersum, K. W. (2016). Transformational Leader attributes: interpersonal skills, engagement, and well-being. *Leadership & Organization Development Journal*, 37(5), 635-657. <https://doi.org/10.1108/LODJ-09-2014-0178>
- Montes, L. (2019). *Liderazgo de equipos virtuales: Factores de éxito*. Retrieved from [http://bibliotecadigital.econ.uba.ar/download/tpos/1502-1515\\_MontesPerezLM.pdf](http://bibliotecadigital.econ.uba.ar/download/tpos/1502-1515_MontesPerezLM.pdf)
- Neumayr, T., Saatci, B., Rintel, S., Klokmose, C. N., & Augstein, M. (2021). "What was Hybrid? A Systematic Review of Hybrid Collaboration and Meetings Research", *ACM Transactions on Computer-Human Interaction*. Retrieved from <http://arxiv.org/abs/2111.06172>
- Nikbakhsh, N. (2022). *Assessing the impact of authentic leadership and the conflict management on the performance of remote-working employees: The example of software/online platform development companies* (Unpublished master's thesis). Tallinn University of Technology.
- Northouse, P. G. (2022). *Leadership: Theory and practice* (7th ed.). Sage Publications.
- Rojak, J. A., Sanaji, S., Witjaksono, A. D., & Kistyanto, A. (2024). The influence of transformational leadership and organizational culture on employee performance. *EDUKASIA: Jurnal Pendidikan dan Pembelajaran*, 5(1), 977-990. <https://doi.org/10.62775/edukasia.v5i1.926>
- Purvanova, R. K., & Bono, J. E. (2009). Transformational leadership in context: Face-to-face and virtual teams. *The Leadership Quarterly*, 20(3), 343-357. <https://doi.org/10.1016/j.leaqua.2009.03.004>
- Rotundo, M., & Sackett, P. R. (2002). The relative importance of task, citizenship, and counterproductive performance to global ratings of job performance: A policy-capturing approach. *Journal of Applied Psychology*, 87(1), 66-80. <https://psycnet.apa.org/doi/10.1037/0021-9010.87.1.66>
- Rosch, D. M., & Collins, J. D. (2017). The significance of student organizations to leadership development. *New directions for student leadership*, 2017 (155), 9-19. <https://doi.org/10.1002/yd.20246>
- Statista. (2023). *Porcentaje de empleados que trabajaron desde casa durante el confinamiento en México en junio de 2020*. Retrieved from <https://es.statista.com/estadisticas/1147384/porcentaje-empleados-home-office-mexico/>
- Sultana, S., Subat, A., & Bhuiyan, M. N. (2021). THE RELATIONSHIP BETWEEN JOB STRESS AND WORKPLACE DEVIANT BEHAVIORS: A STUDY ON BANK EMPLOYEES IN BANGLADESH. *Bangladesh Journal of Multidisciplinary Scientific Research*, 4(1), 14-24. <https://doi.org/10.46281/bjmsr.v4i1.1276>
- Sunesson, G. (2020). *Industries hit hardest by coronavirus in the US include retail, transportation, and travel*. USA Today. Retrieved from <https://www.usatoday.com/story/money/2020/03/20/us-industries-being-devastated-by-the-coronavirus-travel-hotels-food/111431804/>
- Zhang, Y., Zhao, R., & Yu, X. (2022). Enhancing virtual team performance via high-quality interpersonal relationships: Effects of authentic leadership. *International Journal of Manpower*, 43(4), 982-1000. <https://doi.org/10.1108/IJM-08-2020-0378>

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