

Personality and leadership style in generation Z: A quantitative study in a higher education institution in Mexico

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Abstract

Purpose: The purpose of this study was to discern the combination of personality traits that most contribute to effective leadership styles in individuals belonging to Generation Z.

Design/methodology/approach: We utilized a structural equation model to analyze data from 244 higher education students in Mexico. This approach allowed us to examine the relationship between personality traits, leadership styles, and perceived effectiveness.

Findings: Our findings indicate that the transformational leadership style is the most impactful among Generation Z individuals. Furthermore, the personality traits of Openness and Conscientiousness emerged as the most influential in relation to effective leadership styles.

Research limitations/implications: Despite valuable insights, limitations exist due to small sample size (n=244) from one institution, restricting generalizability. The cross-sectional nature provides a snapshot, not accounting for societal/technological shifts affecting Generation Z over time. Self-reported data may suffer from biases. The cultural context focuses solely on a Mexican educational setting. Future research calls for larger, more diverse samples across institutions/countries with longitudinal data to offer enhanced, nuanced understanding of evolving leadership and personality traits within Generation Z.

Practical implications: Organizations could enhance effectiveness by fostering transformational leadership among Generation Z employees through coaching/training programs tailored for this cohort. Academically, business curricula would benefit from integrating insights on aligning leadership styles with inherent personality traits.

Social implications: Transformational leadership emergence within Generation Z may propagate leaders equipped to drive innovation, convey visionary goals, and evoke follower commitment to address pressing societal issues.

Originality/value: To our knowledge, this study represents the first investigation within the Mexican context examining the interplay of personality traits, leadership styles, and effectiveness among Generation Z individuals.

Keywords: Transformational leadership, Big five, Generation Z, Structural equation modeling, Effectiveness

Jel Codes: J24, M12, M54

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1. Introduction

The exploration of various aspects of leadership has persistently been a critical area of study as organizations continually strive to maintain competitiveness (Keskes, 2014). Over recent decades, a resurgence of interest has been noted in investigating the relationship between personality traits and effective leadership (De Hoogh, Den Hartog & Koopman, 2005). Leadership has been defined in diverse ways, encompassing individual traits, behaviors, and interaction patterns (Murotmusaev, Makhkamov, Rasulov & Karimova, 2022; Yukl, 1989). The trait approach suggests that leadership is contingent on a leader's personal attributes (Judge, Bono, Ilies & Gerhardt, 2002; Yukl, 1989). However, it is crucial to acknowledge that other factors may also influence leadership behavior (Andersen, 2006). Bass, McGehee, Hawkins, Young and Gebel (1953) contend that when situational variations are minimized, personality can become a paramount determinant of leadership potential.

The present research seeks to identify the personality traits within Generation Z students that most strongly correlate with transformational, transactional, and laissez-faire leadership styles. Additionally, the study aims to ascertain which of these styles is most effective for this generation.

Transformational, transactional, and laissez-faire leadership styles were selected for this study due to their established recognition and extensive use in leadership practice. Transformational leadership has demonstrated high effectiveness, fostering increased performance, commitment, and satisfaction among followers (Ahmad & Yekta, 2010; Cho, Shin, Billing & Bhagat., 2019; Erkutlu, 2008; Keskes, 2014; Saad-Alessa, 2021). Transactional leadership can effectively achieve short-term results (Vito, Higgins & Denney, 2014), while laissez-faire leadership has demonstrated varied effects, from negative impacts on followers (Dumdum, Lowe & Avolio, 2013; Skogstad, Einarsen, Torsheim, Aasland & Hetland, 2007) to the potential of empowering them to generate results independently (van Eeden, Cilliers & van Deventer, 2008). It is essential to recognize that these styles each hold their unique characteristics and effectiveness in varied situations.

The field of leadership remains an evolving area of scholarly inquiry, particularly significant for organizations aiming to sustain a competitive edge (Keskes, 2014). While previous studies have examined the interplay between personality traits and leadership effectiveness (De Hoogh et al., 2005), these inquiries have not adequately focused on the unique attributes and challenges posed by Generation Z. De Hoogh et al. (2005), for instance, investigated the relationship between the Big Five personality traits and charismatic and transactional leadership, but their research did not account for generational variables that may affect this relationship.

While previous studies have examined the interplay between personality traits and leadership effectiveness (De Hoogh et al., 2005), these inquiries have not adequately focused on the unique attributes and challenges posed by Generation Z. These include their highly achievement-orientation and want their managers to become private mentors (Gabriellova & Buchko, 2021), preference for autonomous decision-making (Titko, Svirina, Skvarciany & Shina, 2020), responsiveness to rewards and recognition (Bejtkovský, 2016), emphasis on work-life balance and openness to change (Gabriellova & Buchko, 2021; Titko et al., 2020). They tend to be collaborative and know how to respect the opinions of others (Magano, Silva, Figueiredo, Vitória, Nogueira & Dinis, 2020), valuing aspects such as authenticity and humility (Dwidienawati, Syahchari & Tjahjana, 2022). Accounting for these generational factors is crucial, as leadership approaches tailored to previous cohorts may not motivate and engage Generation Z employees to the same degree. Our study specifically addresses this research gap by focusing on the leadership styles most impactful for Generation Z in light of their distinctive traits.

Previous research has indicated that Generation Z exhibits unique characteristics and preferences in leadership, valuing aspects such as authenticity and humility (Dwidienawati et al., 2022). In filling this research gap, our study

extends the current literature in two fundamental ways. First, it identifies the personality traits within Generation Z individuals that strongly correlate with transformational, transactional, and laissez-faire leadership styles. Second, the study seeks to determine which of these leadership styles is most effective for leading Generation Z, thereby offering empirical guidance for both academic and organizational settings. Our findings contribute to the growing body of research that examines personality traits in the context of leadership, complementing studies such as Lamm, Holder, Randall, Edgar and Lamm (2021), which explored these dynamics in specific leadership development programs.

Many studies have measured effectiveness in various ways; in this study, we revisit the measurements of the MLQ, as it is by far one of the most widely used in leadership literature (Dumdum et al., 2013). This instrument assesses effectiveness across six dimensions, including technical competence, interpersonal skills, procedural justice, organizational influence, communication, and goal clarification (Hinkin & Schriesheim, 2008). Consequently, effectiveness can be defined as the comprehensive ability to achieve positive outcomes for both the company and the organizational environment through goal clarification and the appropriate combination of hard and soft skills. It also involves the fair application of processes and procedures to ensure equity in decision-making.

The focus on transformational, transactional, and laissez-faire leadership styles was deliberate, given their widespread recognition and extensive application in leadership practice (Ahmad & Yekta, 2010; Cho et al., 2019; Erkutlu, 2008; Keskes, 2014; Saad-Alessa, 2021; Vito et al., 2014). However, it is essential to acknowledge that other leadership theories and approaches, such as servant leadership (Greenleaf, 1977; van Dierendonk, 2011) or authentic leadership (Avolio & Gardner, 2005; Walumbwa, Avolio, Gardner, Wernsing & Peterson, 2008), also hold promise for future research and application.

Generation Z, defined as individuals born approximately between 1995 and 2010 (Goh & Lee, 2018), has recently entered the job market, making the exploration of effective leadership styles for this cohort increasingly imperative. Previous studies (Gabriellova & Buchko, 2021; Magano et al, 2020) have touched upon the general characteristics of this generation but have not focused on the nuanced interaction between Generation Z's personality traits and effective leadership styles.

2. Literature Review

2.1. Leadership

Leadership is characterized as the act of influencing others to achieve group or organizational goals (Andersen, 2006), with a leader's behavior propelling group progress in a shared direction (Bass et al., 1953). Leadership typically occurs within formal group settings, promoting effective collaborations and preventing conflicts between groups (Hogg, van Knippenber & Rash III, 2012). Successful leadership is marked by its capacity to effect changes in others' behaviors, while effective leadership is typically associated with achieving change through rewards rather than punishments (Bass, 1961). A leader's effectiveness is also linked to their ability to influence subordinates (Andersen, 2006; Judge et al., 2002). Furthermore, leadership unfolds when the leader engages with the follower, thereby elevating both their motivation and morality toward a shared purpose (Phipps & Prieto, 2011).

There exists a rich body of research dedicated to examining the relationship between leadership styles and personality indicators (Church & Waclawski, 1998). For instance, Bass et al. (1953) incorporated various measures, including the Rorschach test and the Guilford-Zimmerman Temperament Survey, into their study. Similarly, Church and Waclawski (1998) employed the Myers-Briggs Type Indicator and the Kirton Adaptation Inventory to explore the connection between personality and leadership styles. The Big Five Model has been extensively utilized in studies examining the relationship between personality and leadership (Barrick & Mount, 1991; Bono & Judge, 2004; Crowne, 2019; De Hoogh et al., 2005; Judge et al., 2002; McCormack & Mellor, 2002; Taggar, Hackew & Saha, 1999; Zopiatis & Constanti, 2012). By exploring this relationship, we can enhance our understanding of the personality traits that exert the greatest influence on leadership (Crowne, 2019).

Initially, there was no structured taxonomy of personality that facilitated the integration of results in the study of personality and leadership (De Hoogh et al., 2005). However, the Big Five Model, which posits that personality

comprises five independent dimensions providing a meaningful taxonomy for studying individual differences (Barrick & Mount, 1991), has proven invaluable in this context (De Hoogh et al., 2005). This model has also offered a substantial taxonomy for examining job performance (Judge et al., 2002) and probing the role of personality in leadership effectiveness (Hautala, 2006; Judge et al., 2002; Lim & Ployhart, 2004; McCormack & Mellor, 2002) and ethic leadership (Damti & Hochman, 2022). In this study, we intend to use the Big Five Model to discern the traits most prominent in Generation Z students exhibiting behaviors associated with transformational, transactional, and laissez-faire leadership. This taxonomy has been previously employed for leadership research in students by authors such as Coglisier, Gardner, Gavin and Broberg (2012), Damti and Hochman (2022), Furtner and Rauthmann (2010), Lamm et al. (2021), Lee, Haught, Chen and Chan (2013), and Wu, van der Linden, Dunkel, van Vugt and Han (2022).

The Big Five Model is composed of five categories: Extraversion, Conscientiousness, Openness, Agreeableness, and Neuroticism. Extraversion is marked by a tendency toward assertiveness, activity, and experiencing positive feelings such as energy and enthusiasm (Judge et al., 2002), along with a propensity to seek stimulation in the company of others (Mammadov, 2022). This dimension also encompasses dominance—the desire to lead (Lussier & Achua, 2016). Conscientiousness comprises two related facets: achievement and reliability (Judge et al., 2002). Those scoring high in Conscientiousness typically exhibit self-discipline, planning, and organization (Mammadov, 2022). Openness signifies a willingness to be imaginative, non-conforming, unconventional, and autonomous (Judge et al., 2002), reflecting a degree of intellectual curiosity and creativity (Mammadov, 2022). This dimension includes traits such as flexibility, intelligence, and locus of control (Lussier & Achua, 2016). Agreeableness is characterized by tendencies toward trust, obedience, attentiveness, and gentleness (Judge et al., 2002), along with a proclivity to be prosocial and cooperative rather than antagonistic (Mammadov, 2022). This dimension is closely related to emotional intelligence (Lussier & Achua, 2016). Lastly, Neuroticism is marked by a tendency to display poor emotional adjustment and experience negative feelings such as anxiety, insecurity, and hostility (Judge et al., 2002), along with anger and depression (Mammadov, 2022).

2.3. Transformational Leadership

Transformational leadership is a robustly researched concept that encompasses a leader's ability to identify and articulate a vision (Bass & Avolio, 1994; Kuo, Ho, Wu & Lin, 2010; Zopiatis & Constanti, 2012), to motivate followers to exceed expectations (Do & Minbashian, 2014; Kuo et al., 2010; Phipps & Prieto, 2011), and to guide them towards identifying higher purposes (Kuo et al., 2010). This style of leadership is characterized by change (Hautala, 2006), and the capacity to foster highly satisfactory and innovative cultures (Bass & Avolio, 1994). Transformational leaders are adept at influencing followers by authentically motivating them, instilling new meanings, and forging novel modes of action. They can develop the potential within their followers and adapt to environmental demands by challenging the status quo. As proposed by Bass (1985), the dimensions of transformational leadership encompass idealized influence, inspiring motivation, intellectual stimulation, and individualized consideration (Ayub, Kanwal & Kausar 2019; Bass & Riggio, 2005; Bono & Judge, 2004). These dimensions encapsulate the quintessential characteristics of transformational leaders (Kim & Park, 2020).

Upon reviewing the literature, several correlations were discerned between the Big Five personality traits and transformational leadership style, as depicted in Table 1.

Hence, we propose the following hypotheses:

H1: The Big Five personality traits are related to transformational leadership.

H1a: Extraversion is positively related to transformational leadership.

H1b: Agreeableness is positively related to transformational leadership.

H1c: Openness to experience is positively related to transformational leadership.

H1d: Neuroticism is negatively related to transformational leadership.

H1e: Conscientiousness is positively related to transformational leadership.

Trait	Authors	Relationship
Extraversion	Judge & Bono (2000), Bono & Judge (2004), Phipps & Prieto (2011), Zopiatis & Constanti (2012), Lopez-Perry (2020).	Positive
Agreeableness	Judge & Bono (2000), Phipps & Prieto (2011), Lopez-Perry (2020).	Positive
	Zopiatis & Constanti (2012).	None
Openness	Judge & Bono (2000), Phipps & Prieto (2011), Zopiatis & Panayiotis (2012), Magano et al. (2020), Lopez-Perry (2020).	Positive
Neuroticism	Phipps & Prieto (2011), Lopez-Perry (2020).	Positive
	Bono & Judge (2004).	Negative
	Judge & Bono (2000), Zopiatis & Constantini (2012).	None
Conscientiousness	Bass & Avolio (1994), Kuo et al. (2010), Phipps & Prieto (2011), Zopiatis & Constanti (2012), Lopez-Perry (2020).	Positive
	Judge & Bono (2000).	Not significant

Table 1. Literature review of Big Five Traits' influence on transformational leadership

2.4. Transactional Leadership

Transactional leadership encapsulates a leadership style wherein rewards or recognition are offered in exchange for cooperative behaviors and adherence to task requirements (Dumdum, et al., 2013; Judge & Piccolo, 2004). Such leadership may also involve circumventing disciplinary actions or negative feedback (Hater & Bass, 1988). However, this reciprocal exchange tends to be effective primarily in the short term (Vito et al., 2014). In stark contrast to transformational leadership, transactional leadership does not aspire to alter the future but endeavors to preserve the status quo by rewarding the diligence and dedication of subordinates (De Hoogh et al., 2005). The two dimensions of transactional leadership are contingent reward and active management by exception (Avolio, Bass & Jung, 1999; Bass, Avolio, Jung & Berson, 2003; Hater & Bass, 1988; Judge & Piccolo, 2004; Sarros & Santora, 2001; van Eeden et al., 2008). In conducting a literature review, several correlations emerged between the Big Five personality traits and the transactional leadership style, as illustrated in Table 2.

Trait	Authors	Relationship
Extraversion	Bono & Judge (2004)	Negative
	García, Duncan, Carmody-Bubb & Ree (2014)	Not significant
Agreeableness	Bono & Judge (2004), De Hoogh et al. (2005)	Positive
Openness	García et al. (2014)	Positive
	Bono & Judge (2004)	Negative
Neuroticism	Bono & Judge (2004)	Inconclusive
	García et al. (2014)	Negative
Conscientiousness	Bono & Judge (2004) and De Hoogh et al. (2005)	Positive

Table 2. Literature review of Big Five Traits' influence on transactional leadership

Subsequently, we propose the following hypotheses:

H2: The Big Five personality traits are related to transactional leadership.

H2a: Extraversion is negatively related to transactional leadership.

H2b: Agreeableness is positively related to transactional leadership.

H2c: Openness to experience is negatively related to transactional leadership.

H2d: Neuroticism is negatively related to transactional leadership.

H2e: Conscientiousness is positively related to transactional leadership.

2.5. Laissez-Faire Leadership

Laissez-faire leadership is typified by an absence of involvement and guidance from the leader, who permits followers to continue their tasks unimpeded if performance objectives are met (Bono & Judge, 2004; Hater &

Bass, 1988; Judge & Piccolo, 2004; van Eeden et al., 2008). This passive stance is termed management by exception-passive. In its extreme form, laissez-faire leadership can imply an utter lack of leadership, whereby the leader allows events to develop organically without interference, even under critical circumstances (Eagly, Johannesen-Schmidt & van Engen, 2003). This leadership style may prove detrimental, potentially fostering a stressful work environment rife with role stress and interpersonal conflicts (Skogstad et al., 2007). Conversely, it could be employed to foster subordinate self-management (van Eeden et al., 2008). The dimensions of this leadership style are Management by exception-passive and Laissez-faire leadership (Bono & Judge, 2004; Eagly et al., 2003; Hater & Bass, 1988; Judge & Piccolo, 2004; van Eeden et al., 2008).

An examination of the existing literature revealed several correlations between the Big Five personality traits and the laissez-faire leadership style, as shown in Table 3.

Trait	Authors	Relationship
Extraversion	Bono & Judge (2004)	Negative
Agreeableness	Bono & Judge (2004)	Negative
Openness	Bono & Judge (2004)	Positive
Neuroticism	Bono & Judge (2004), García et al. (2014)	Positive
Conscientiousness	Bono & Judge (2004), García et al. (2014)	Negative

Table 3. Literature review of Big Five 'Traits' influence on laissez-faire leadership

As a result, we propose the following hypotheses:

H3: The Big Five personality traits are related to laissez-faire leadership.

H3a: Extraversion is negatively related to laissez-faire leadership.

H3b: Agreeableness is negatively related to laissez-faire leadership.

H3c: Openness to experience is positively related to laissez-faire leadership.

H3d: Neuroticism is positively related to laissez-faire leadership.

H3e: Conscientiousness is negatively related to laissez-faire leadership.

The effectiveness of transformational leadership has been consistently demonstrated as high and positively associated across numerous studies utilizing the Multifactor Leadership Questionnaire (MLQ) as a measurement tool (Dumdum et al., 2013; Eagly et al., 2003; Lowe, Kroeck & Sivasubramaniam, 1996). The MLQ evaluates effectiveness across six dimensions: technical competence, interpersonal skills, procedural fairness, organizational influence, communication, and goal clarification (Hinkin & Schriesheim, 2008). Other studies have demonstrated that transformational leadership is positively associated with effectiveness, such as high levels of external knowledge acquisition (Jiang & Chen, 2018), which reflects greater competitiveness of the organization.

On the other hand, regarding transactional leadership, a positive correlation with effectiveness has been noted in the dimension of contingent reward (Dumdum et al., 2013), while a negative association has been identified in the management by active exception dimension (Dumdum et al., 2013; Lowe et al., 1996). Notably, De Hoogh et al. (2005) reported no significant correlation between transactional leadership and effectiveness in either stable or dynamic environments.

For laissez-faire leadership, the relationship with effectiveness as reported in the literature is largely negative (Dumdum et al., 2013; Skogstad et al., 2007). Wong & Giessner (2018) point out that perceptions of effectiveness of this leadership style tend to be low when it is evaluated by followers. However, Yang (2015) has pointed to possible positive effects of this leadership style by suggesting that it could foster a sense of autonomy and self-control among employees. Based on the relationship between leadership styles and effectiveness literature review, we suggest the following hypotheses:

H4: Different leadership styles are related to effectiveness.*H4a: Transformational leadership is positively related to effectiveness.**H4b: Transactional leadership is positively related to effectiveness.**H4c: Laissez-faire leadership is negatively related to effectiveness.***3. Methodology****3.1. Participants**

The research was conducted in a nonprofit private University based in San Andrés Cholula, Puebla (Mexico). The sample consisted of 246 students that belonged to the five schools of the University. The results are presented in Table 4.

	Frequency	%
Participants' country of origin		
Mexico	238	96.7%
Other countries	8	3.3%
Total	246	100.0%
Participants' gender		
Female	120	48.8%
Male	124	50.4%
Other	2	0.8%
Total	246	100.0%
Participants' school		
Arts and Humanities	3	1.2%
Business and Economics	159	64.6%
Engineering	32	13.0%
Sciences	29	11.8%
Social Sciences	15	6.1%
Not reported	8	3.3%
Total	246	100.0%
Participants' school year		
1st year	120	48.8%
2nd year	36	14.6%
3rd year	35	14.2%
4th year	39	15.9%
5th year	8	3.3%
Not reported	8	3.3%
Total	246	100.0%
Participants' age		
Min	18	
Max	26	
Mean	18.7	
SD	1.1	
Note: n = 246		

Table 4. Demographic and educational profile of participants

Our methodology aligns with studies like Lamm et al. (2021), which investigated the interplay of demographic factors and personality traits in leadership development contexts.

3.2. Instruments

3.2.1. Big Five Inventory

To assess the personality traits of Generation Z students, this study utilized the Big Five Inventory (BFI). The BFI is a self-report inventory based on the Five-Factor Model of personality, which posits that individual differences in personality can be categorized into five broad dimensions: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (OCEAN) (John, Naumann & Soto, 2008). The BFI has been extensively validated and has demonstrated high levels of both construct validity and reliability. Previous research has indicated Cronbach's alpha coefficients ranging from 0.75 to 0.85 for the various dimensions, signifying good internal consistency (Denissen, Geenen, Soto, John & van Aken, 2019; Halama, Kohút, Soto & John, 2020). The BFI was selected for this study due to its brevity, ease of administration, and robust psychometric properties (John et al., 2008). Its widespread use in academic research also makes it a suitable tool for investigating the personality traits of Generation Z students, thereby facilitating comparisons with other studies (Soto, John, Gosling & Potter, 2008). Table 5 shows the results obtained after the application of the Big Five Inventory instrument.

n= 246	Extraversion	Agreeableness	Openness	Neuroticism	Conscientiousness
m	3.44	3.60	3.83	2.94	3.69
SD	0.74	0.47	0.50	0.63	0.61
Min	1.63	2.11	2.70	1.38	1.67
Max	4.88	4.67	4.90	4.63	5.00

Table 5. Big Five Inventory results

3.2.2. Multifactor Leadership Questionnaire (MLQ-5X)

To evaluate the leadership styles and effectiveness among Generation Z students, this study employed the Multifactor Leadership Questionnaire (MLQ-5X). The MLQ-5X is a widely used instrument designed to assess a range of leadership types, including transformational, transactional, and laissez-faire leadership (Avolio et al., 1999). The MLQ-5X has undergone rigorous psychometric testing to establish its reliability and validity. Prior studies have confirmed the instrument's construct validity, demonstrating its effectiveness in accurately measuring various leadership styles (Tepper & Percy, 1994). In terms of reliability, the MLQ-5X has shown commendable internal consistency across its scales. Cronbach's alpha coefficients for the different scales have been reported to range from moderate to high levels, affirming the questionnaire's reliability in assessing leadership styles (Muenjohn & Armstrong, 2008).

n= 246	Transformational leadership	Transactional leadership	Laissez-faire leadership
m	3.96	3.59	2.16
SD	0.48	0.53	0.51
Min	2.25	2.13	1.13
Max	4.90	4.75	4.00

Table 6. Multifactor Leadership Questionnaire (MLQ-5X) results

The data from Table 5 and Table 6 reveal how Gen Z students rated themselves on the Big Five personality traits and the Multifactor Leadership styles. The highest mean score for personality was Openness (3.83), the second highest was Conscientiousness (3.69), Agreeableness (3.60) and Extraversion (3.44). The lowest mean score was Neuroticism (2.94).

For leadership style, the students scored the highest on transformational leadership (3.96). The second highest score was transactional leadership (3.59), and the lowest score was laissez-faire leadership (2.16).

3.3. Procedure

The administration of the test and questionnaire was carried out using an online platform. The Big Five Inventory and the MLQ-5X were applied to 246 students that belong to the Gen Z category to evaluate their

personality traits and rate their leadership style. The participants were granted anonymity, and no compensation was provided for their participation.

3.4. Structural Equation Modeling

A structural equation modeling (SEM) approach was used to explore the relationships among various attributes of students' personality traits, leadership styles, and effectiveness. SEM is a statistical framework that can be used to analyze path relationships (Hair, Anderson, Tatham & Black, 2010). Previous studies (e.g., Houghton, Bonham, Neck & Singh, 2004) have employed this approach to study the relationship between leadership and personality within the higher education context.

Adopting a two-stage approach (Anderson & Gerbing, 1988), we first focused on developing structural models and validating the unidimensional nature of our latent constructs through confirmatory factor analysis (CFA). Once the unidimensionality of the latent constructs was verified, the next step involved employing SEM to verify the theorized structural relationships between personality traits, leadership style, and effectiveness. Model fit was assessed employing a variety of indicators, with preference given to Chi-square and degrees of freedom, the comparative fit index (CFI), the Tucker Lewis Index (TLI), the root mean square error of approximation (RMSEA), the goodness-of-fit index (GFI) and the incremental fit index (IFI) (Hair et al., 2010; Baumgartner & Homburg, 1996; Iacobucci, 2010).

Our study was conducted in a private higher education institution located in the state of Puebla, Mexico. Both the Big Five Inventory and the MLQ-5X questionnaires were applied to students from all 5 Schools. The subjects were all members of Generation Z, providing a unique lens through which to view these relationships. Demographic information of the subjects is detailed in Table 4.

The data for this study was gathered using an online instrument of 89 Likert-style items and five demographic questions, totaling 94 items. The participants were students belonging to a higher education private institution, who responded to the instrument over a two-month period between April and May, 2021. The invitation to participate was sent via e-mail to all the schools of the institution and we received 246 responses.

In our study, the participants answered 44 questions regarding personality traits, 36 questions pertaining to leadership style, and nine questions concerning effectiveness. The collected data was transferred to spreadsheet software for further processing. All questions were graded on a five-point Likert-type scale.

For data analysis, the R programming language was used (version 3.4.4). The survey data, saved in CSV format, was analyzed using the 'psych' package (version 2.2.5). A global Cronbach's alpha coefficient of 0.94 was obtained, indicating an elevated level of internal consistency for our scale. A Guttman's lambda coefficient of 0.97 further confirmed the reliability of the instrument. Additionally, McDonald's omega coefficient, which estimates the general factor saturation of a test (Zinbarg, Revelle, Yovel & Li, 2005), was calculated. A higher omega coefficient indicates that a greater proportion of the variance in the observed variables can be explained by the underlying factors. Table 7 provides an overview of the global dataset coefficients.

Coefficient	Value
Global Cronbach's alpha	0.95
Guttman's lambda 6	0.97
Average split half reliability	0.95
Guttman's lambda 3 (alpha)	0.95
Guttman's lambda 2	0.95
Minimum split half reliability (beta)	0.88
Omega Hierarchical	0.68
Omega H asymptotic	0.71
Omega Total	0.95

Table 7. Global dataset coefficients

Following the analysis of our instrument's reliability, we proceeded with an exploratory factor analysis on the items that compose the Big Five personality trait scale. To determine the number of factors, a scree test was conducted, which is visually represented in Figure 1. The parallel analysis, as depicted in the graph, suggests six factors.

However, theoretical knowledge (John & Srivastava, 1999; Judge & Bono, 2000) points out that there should be only five factors, each corresponding to one personality trait. To corroborate this, we performed a maximum-likelihood factor analysis on the personality trait data, using the 'factanal' function of the stats package (version 3.4.4) with varimax rotation and stipulating five factors. Following this exploratory process, we then conducted a Confirmatory Factor Analysis using lavaan (Rosseel, 2012) v. 0.6-12. The results of the CFA are presented in Table 8.

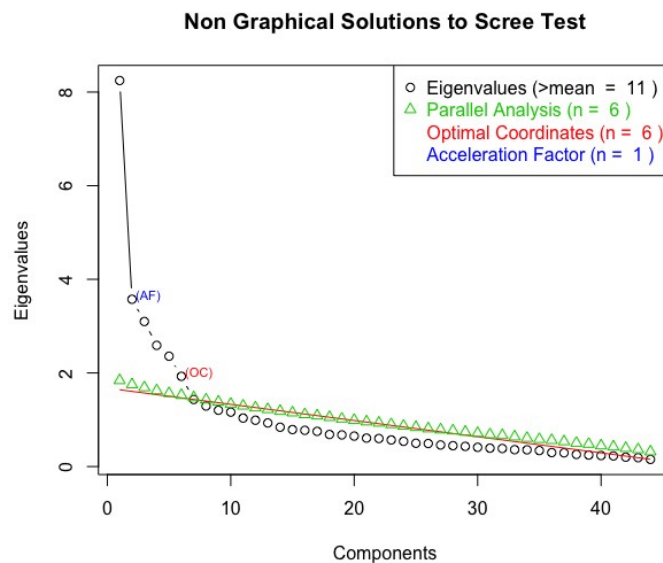


Figure 1. Parallel analysis scree test

Observations	244
Estimator	ML
Model Test User Model	
Model Chi square	1501.88
Degrees of freedom	751
P-value (Chi square)	0.00
Model Test Baseline Model	
Model Chi square	4697.88
Degrees of freedom	820
P-value	0.00
User Model versus Baseline Model	
Comparative Fit Index (CFI)	0.81
Tucker-Lewis Index (TLI)	0.79
RMSEA	0.064
90% Confidence Interval lower	0.06
90% Confidence Interval upper	0.07
P-value RMSEA ≤ 0.05	0.00
SRMR	0.08

Table 8. Results of confirmatory factor analysis

Among the metrics we used to assess our model fit is the Tucker-Lewis Index (TLI), which is akin to the NFI and is independent of sample size according to Marsh, Balla & McDonald (1988). TLI is usually lower than the Goodness of Fit Index (GFI), but values over 0.90 are acceptable (e.g., Hu & Bentler, 1995). The factor loadings from our model are presented in Table 9, using a cutoff value of 0.5.

Latent construct	Observed variables	Factor loading	Cronbach's alpha
Personality traits			
Extroversion	EX1	0.69	0.88
	EX2	0.75	
	EX5	0.86	
	EX7	0.69	
	EX8	0.81	
Openness	OP1	0.60	0.80
	OP2	0.55	
	OP3	0.64	
	OP4	0.58	
	OP5	0.56	
	OP8	0.53	
Conscientiousness	CN2	0.78	0.81
	CN4	0.79	
	CN5	0.59	
	CN6	0.53	
	CN9	0.57	
Agreeableness	AG7	0.61	0.67
	AG8	0.52	
	AG9	0.59	
Neuroticism	NE2	0.64	0.73
	NE3	0.59	
	NE4	0.62	
	NE5	0.53	
	NE8	0.52	
Leadership style			
Transformational	IM1	0.67	0.88
	IM2	0.74	
	IIB2	0.70	
	CR3	0.55	
	IIA4	0.61	
	IM3	0.70	
	IC4	0.53	
	IM4	0.61	
Laissez-faire	MEP2	0.54	0.66
	MEP4	0.69	
	LF4	0.61	
Transactional	MEA3	0.51	0.52
	MEA4	0.56	

Table 9. Factor loadings

For the SEM analysis, we used the lavaan 0.6-12 package with the default ML (maximum likelihood) estimator typically used for continuous data. Classical multivariate analysis assumes data comes from a multivariate normal distribution. However, our data, being extracted from a 5-point Likert scale, is ordinal and not continuous (Norman, 2010). Ordinal data typically doesn't follow a normal distribution, and we ran Mardia's tests of multinormality (Kankainen, Taskinen & Oja, 2004) to confirm this. Despite this, we decided to proceed with parametric statistics due to their robustness and appropriateness for ordinal data (Norman, 2010). The results of the theorized relationships are provided in Figure 2, while the complete model results are given in Table 10.

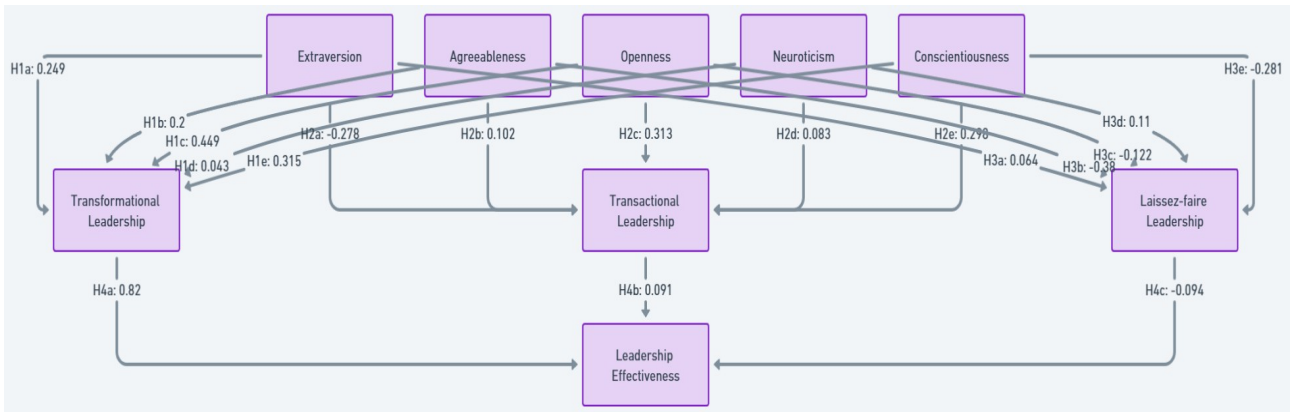


Figure 2. Structural equation model with ML estimator

Estimator	ML
Optimization method	NLMINB
Chi square	1501.88
Degrees of freedom	751
CFI	0.80
TLI	0.79
RMSEA	0.064
SRMR	0.077

Table 10. Structural equation model result

4. Results

Moving on to the discussion of our results, we can examine the data presented in Table 9, which sheds light on the Big Five personality traits' most effective items in assessing each of its dimensions. This data also provides insight into the three leadership styles that we have studied. The results allow us to ascertain which of the proposed hypotheses have been validated, as illustrated in Table 11.

In the present study, the t-value serves as a critical statistic for evaluating the significance of each path coefficient in the Structural Equation Modeling (SEM). The t-value is calculated as the ratio of the estimated parameter to its standard error. High absolute values of the t-value indicate that the null hypothesis—stating that the path coefficient is zero (no effect)—can be rejected in favor of the alternative hypothesis.

To interpret the t-values, a critical value was established based on the confidence level desired for the study. For a 95% confidence level, the critical t-value is ± 1.96 , derived from the standard normal distribution. This means that if the absolute value of the calculated t-value for a specific path is greater than 1.96, we can reject the null hypothesis at the 0.05 significance level, thereby lending support to the study's hypotheses. By contrasting the calculated t-values with the critical value of ± 1.96 , we were able to systematically evaluate the support for each hypothesis.

Hypothesis	Path description	Standardized coefficient	Critical ratio (t-value)	Decision
H1a	Extraversion -> Transformational Leadership	0.249	3.95	Accept
H1b	Agreeableness -> Transformational Leadership	0.200	2.737	Accept
H1c	Openness -> Transformational Leadership	0.449	5.424	Accept
H1d	Neuroticism -> Transformational Leadership	0.043	0.662	Reject
H1e	Conscientiousness -> Transformational Leadership	0.315	4.494	Accept
H2a	Extraversion -> Transactional Leadership	-0.278	-2.1	Accept
H2b	Agreeableness -> Transactional Leadership	-0.102	-0.929	Reject
H2c	Openness -> Transactional Leadership	0.313	2.076	Accept
H2d	Neuroticism -> Transactional Leadership	0.083	0.807	Reject
H2e	Conscientiousness -> Transactional Leadership	0.298	2.096	Accept
H3a	Extraversion -> Laissez-faire Leadership	0.064	0.771	Reject
H3b	Agreeableness -> Laissez-faire Leadership	-0.380	-3.33	Accept
H3c	Openness -> Laissez-faire Leadership	-0.122	-1.262	Reject
H3d	Neuroticism -> Laissez-faire Leadership	0.110	1.134	Reject
H3e	Conscientiousness -> Laissez-faire Leadership	-0.281	-2.953	Accept
H4a	Transformational Leadership -> Effectiveness	0.820	6.425	Accept
H4b	Transactional Leadership -> Effectiveness	0.091	1.289	Reject
H4c	Laissez-faire Leadership -> Effectiveness	-0.094	-1.129	Reject

Table 11. Hypotheses validation decision

5. Discussion and Conclusions

While millennials and Generation Z share many work values such as work-life balance, achievement, having a supportive environment, and professional development through frequent feedback, these generations differ in some important values like job security and salary, also teamwork (Gabrielova & Buchko, 2021). As a result of these changes, it is imperative to conduct new studies that can serve as a guide for companies aiming to exercise effective leadership in the emerging generations of workers. In this study, we were able to identify that the leadership style exhibiting the highest degree of effectiveness in Generation Z is transformational leadership. In previous research, extraversion, agreeableness, openness, and conscientiousness traits were positively associated with this leadership style, while neuroticism was the only trait showing a negative relationship. Our study reveals that, due to changes in the interests of Generation Z, the relationship between the Big Five personality traits and transformational leadership style has also evolved. In the case of transformational leaders in Generation Z, it was found that all traits exhibit a positive relationship.

One of the noteworthy discoveries is that within this Generation Z cohort of transformational leaders, characteristics of a transactional leadership dimension (as defined by the MLQ) - the contingent reward – are evident. This finding aligns with previous observations by other scholars. Goodwin, Wofford and Whittington (2001), for instance, identified inconsistencies in empirical results for the contingent reward dimension. Similarly, Puni, Mohammed and Asamoah (2018) found that the contingent reward augments the positive effects of transformational leadership. Cho et al. (2019) further discovered a synergistic effect between these two styles of leadership. Goodwin et al. (2001) propose that transformational leaders reward appropriate behaviors through implicit expectations. Moreover, Sulistiyani and Rahardia (2018) have identified that transformational leaders and intrinsic rewards have become vital aspects in motivating employees to share knowledge and exhibit creativity.

In the case of transactional leadership, our results indicate that the management by active exception (MEA) dimension best measures this leadership style (Table 9). It's important to mention that the contingent reward dimension, which the literature associates with this leadership style, was not confirmed by the factor analysis. This could possibly be attributed to the fact that the contingent reward is frequently present in the transformational style, thus not being representative of transactional leadership.

As for the laissez-faire leadership style, the dimensions revealed by the factor analysis (Table 9) coincide with findings from previous studies (Bono & Judge, 2004; García et al., 2014).

5.1. Impact of Big Five Personality Traits on Transformational Leadership within Generation Z

Our model's results reveal a positive relationship between all the Big Five personality traits and transformational leadership within Generation Z, in alignment with Phipps and Prieto (2011) and Lopez-Perry (2020). Notably, the trait demonstrating the strongest correlation is Openness ($r=0.449$) as the t-value (5.424) is greater than the critical value (1.96), a finding that coincides with Crowne (2019), Hassan, Bashir and Abbas (2017), Judge and Bono (2000), Lopez-Perry (2020), and Zopiatis and Constanti (2012), but contradicts Lim and Ployhart's (2004) work, who reported no significant relationship. Transformational leaders, as our data suggest, are characterized by their originality, creativity (Judge & Bono, 2000), resourcefulness, and readiness to undertake risks (Magano et al., 2020). They are often imaginative, and when occupying management roles, they envision their organizations' future and drive change (Bono & Judge, 2004).

The second trait reflecting a strong positive correlation with transformational leadership is Conscientiousness ($r=0.315$) as the t-value (4.494) is greater than the critical value (1.96). This aligns with Crowne (2019), Hassan et al. (2017), Lopez-Perry (2020), and Zopiatis and Constanti's (2012) research. As per Magano et al. (2020), Generation Z values responsibility, dedication, and goal-orientation, traits associated with Conscientiousness. Thus, it is expected that Generation Z's transformational leaders are highly committed to achieving set objectives (Kiarie, Maru & Cheruiyot, 2017).

The third trait most strongly associated with transformational leadership in Generation Z is Extraversion ($r=0.249$) as the t-value (3.950) is greater than the critical value (1.96), a finding similar to Bono and Judge (2004), Crowne (2019), Hassan et al. (2017), Judge and Bono (2000), Lim and Ployhart (2004), Lopez-Perry (2020), and Zopiatis and Constanti's (2012) work. This correlation suggests that Generation Z transformational leaders are sociable, confident, and possess high self-esteem. Erkutlu (2008) suggests that extroverted individuals often exhibit greater inspirational motivation and intellectual stimulation, hinting that Generation Z transformational leaders may act as positive, influential role models, inspiring their followers to high-performance levels.

In the case of Agreeableness, a low positive relationship was found with Generation Z's transformational leadership ($r=0.200$) as the t-value (2.737) is greater than the critical value (1.96). This result is similar to Judge and Bono's (2000) findings and contrasts Lim and Ployhart's (2004) research, which reported a negative relationship. Our results suggest that Generation Z's transformational leaders show concern for others' needs and growth, although they may not be highly sociable or cooperative. They might also be hesitant to share their knowledge (Ayub et al., 2019).

Lastly, unlike the expectations and findings of other studies (Bono & Judge, 2004; Crowne, 2019; Lim & Ployhart, 2004; Zopiatis & Constanti, 2012), Neuroticism in our study reflects an extremely low, but positive correlation with transformational leadership ($r=0.043$). Although our hypothesis established a negative relationship there is insufficient evidence to support it as the t-value (0.662) is less than the critical value (1.96), a finding consistent with Hassan et al. (2017) and Lopez-Perry (2020). Our results suggest that while Generation Z's transformational leaders may display some emotional instability, this does not necessarily negatively impact their leadership. As the correlation coefficient is quite low, this relationship can be considered insignificant. Leaders who are emotionally stable typically exude self-assurance and confidence, traits that can enhance effective communication, negotiation, conflict resolution, and decision-making (Phipps & Prieto, 2011). Moreover, self-esteem and confidence are recognized as essential attributes for leaders who aim to motivate their followers (Judge & Bono, 2000). Although a degree of Neuroticism may be perceived among Generation Z's transformational leaders, their passion can be an inspiring attribute to others. A slight instability might even elicit empathy from followers, making them connect with their leaders in a more humane way. Studies such as those conducted by Dwidienawati et al. (2022) suggest that leadership characterized by its focus on the growth and well-being of people, is particularly effective with Generation Z. This aligns with the emerging consensus that younger generations in the workforce and educational settings prioritize value-based and relational leadership styles.

5.2. Impact of Big Five Personality Traits on Transactional Leadership within Generation Z

Within the context of transactional leadership, the trait of Openness ($r=0.313$) as the t -value (2.076) is greater than the critical value (1.96) demonstrated the most significant relationship. This result aligns with García et al.'s findings (2014), but conflicts with Bono and Judge's (2004) research, who reported a negative relationship. However, when the relationship was only measured with the dimension of contingent reward, Bono and Judge (2004) found a positive correlation. These results suggest that Generation Z's transactional leaders are imaginative, unconventional, and open to risk-taking and new experiences. Even though transactional leadership is often employed in high-risk situations (Baškarada, Watson & Cromarty, 2017), a strong correlation with Openness is expected given the dynamic nature of today's business environment. Furthermore, openness is a defining trait of Generation Z (Titko et al., 2020) and appears to be characteristic of this leadership style (García et al., 2014).

Conscientiousness ($r=0.298$) as the t -value (2.096) is greater than the critical value (1.96) had the second strongest relationship with transactional leadership, a finding consistent with De Hoogh et al. (2005), but at odds with Bono and Judge (2004) who found a negative correlation with Conscientiousness in the MEA dimension. The positive association indicates that transactional leaders are disciplined, organized, and reliable. These traits could manifest in the way they manage their employees, focusing on adherence to established norms for improving the performance of their subordinates.

The third trait showing the strongest but negative relationship with transactional leadership is Agreeableness ($r=-0.102$), our hypothesis established a positive relationship but there is insufficient evidence to support it as the t -value (-0.929) is less than the critical value (1.96). These findings align with Bono and Judge (2004) and Zurita-Ortega, Olmedo-Moreno, Chacón-Cuberos, Expósito-López and Martínez-Martínez (2020) who identified a negative correlation between transactional leadership and some dimensions of emotional intelligence. The negative association between Agreeableness and transactional leadership contradicts De Hoogh et al. (2005) and suggests that this leadership style is related to skeptical, competitive, and distant individuals. This may be due to transactional leaders prioritizing goal attainment over enhancing the abilities of their subordinates. Being overly agreeable may undermine the leader's authority.

Extraversion exhibits a negative relationship with transactional leadership ($r=-0.278$) as the t -value (-2.100) is less than the negative critical value (-1.96), indicating that Generation Z's transactional leaders tend to be reserved, serious, and calm, a finding consistent with Bono and Judge (2004). Less extroverted individuals are not necessarily unhappy or pessimistic, but they lack the need for social closeness characteristic of highly extroverted individuals (McCormack & Mellor, 2002). This reduced need for social interaction may be beneficial for a leadership style that doesn't prioritize interactive leadership (Uusi-Kakkuri & Brandt, 2015) as transformational leadership does.

Finally, Neuroticism presents the least scoring but positive relationship with transactional leadership ($r=0.083$), although our hypothesis established a negative relationship there is insufficient evidence to support it as the t -value (0.807) is less than the critical value (1.96), this is consistent with Bono and Judge's (2004) findings when measured by the MEA dimension but conflicting with García et al. (2014) who found a negative relationship and considered the contingent reward dimension. This suggests that Generation Z's transactional leaders exhibit low Neuroticism and can effectively manage stress, a necessary condition given the nature of this leadership style, which revolves around meeting goals and continually monitoring results.

5.3. Impact of Big Five Personality Traits on Laissez-Faire Leadership within Generation Z

Laissez-faire leadership shows a negative relationship with agreeableness ($r=-0.38$) as the t -value (-3.33) is less than the negative critical value (-1.96), a finding consistent with Bono and Judge (2004). This suggests that individuals under this leadership style may be distant, display low emotional intelligence, and be unsociable. These traits could impact the effectiveness of laissez-faire leadership, a style known for allowing events to unfold without intervention (Glambek, Skogstad & Einarsen, 2018), and potentially exacerbate bullying behaviors.

Conscientiousness also displays a negative correlation with laissez-faire leadership ($r=-0.281$) as the t -value (-2.953) is less than the negative critical value (-1.96), in line with previous research (Bono & Judge, 2004; García

et al., 2014). This negative relationship could be due to the laissez-faire approach of not intervening and allowing subordinates to resolve issues, often associated with irresponsible behavior (Judge & Piccolo, 2004; Sarros & Santora, 2001; van Eeden et al., 2008).

Neuroticism has a positive, though low correlation with laissez-faire leadership ($r=0.110$). Although our hypothesis established a positive relationship there is insufficient evidence to support it as the t-value (1.134) is less than the critical value (1.96), which is consistent with previous studies (García et al., 2014; Bono & Judge, 2004). A lower coefficient in this dimension may suggest a relaxed demeanor, a requirement for this leadership style that tends to allow issues to persist until they become critical.

Extraversion exhibited a positive relationship with laissez-faire leadership ($r=0.064$), there is insufficient evidence to support our hypothesis of a negative relationship as the t-value (0.771) is less than the critical value (1.96), albeit with a low coefficient, contradicting previous research by Bono and Judge (2004). These results imply that Generation Z's laissez-faire leaders may display low levels of sociability, energy, and self-assurance. Given that laissez-faire leadership is marked by non-interference, a low coefficient for extraversion is expected.

Conversely, the trait of Openness demonstrated a negative relationship with laissez-faire leadership ($r=-0.122$), there is insufficient evidence to support that this trait was positive related with this leadership style as the t-value (-1.262) is greater than the negative critical value (-1.96). This result is surprising as it was anticipated that Openness would be advantageous for this leadership style, which seeks to empower subordinates through non-interference (Yang, 2015). Yet, the data suggests that Generation Z's laissez-faire leaders may be inflexible, risk-averse, and uninterested in novel experiences. This interpretation aligns with the negative relationships observed with the traits of Conscientiousness and Agreeableness.

5.4. Impact of Leadership Styles on Leadership Effectiveness within Generation Z

The study's findings reveal that transformational leadership is the most effective style for Generation Z ($r=0.820$) as the t-value is greater than the critical value (1.96) aligns with previous research (Dumdum et al., 2013; Erkutlu, 2008; Lowe et al., 1996). The elevated level of effectiveness observed in transformational leadership among Generation Z could be attributed to their openness to experience, making them receptive to a leadership style that values change (Titko et al., 2020). Another study conducted by Cabana-Villca, Rivera-Guerra Véliz-Fernández and Aguilera-Zambra (2022), confirms that effectiveness performance is more influenced by transformational leadership than transactional leadership. According to their findings, in the model the standardized coefficient for the path between transformational leadership efficiency performance is 0.85, which is very similar to our findings. In line with the conclusions drawn by Al-Amiri, Daradkeh and Al-Al-Kaabi (2019), our study confirms the growing inclination of Generation Z towards more transformational leadership style.

In the case of the other two leadership styles, there is insufficient evidence to support that transactional leadership is positively related to effectiveness, as the t-value (1.289) is less than the critical value (1.96) and there is also insufficient evidence to support that laissez-faire leadership is negatively related to effectiveness, as the t-value (-1.129) is greater than the negative critical value (-1.96).

The low coefficient for transactional leadership ($r=0.091$) could stem from its directive and action-oriented nature, potentially diminishing motivation and commitment among Generation Z who prefer decision-making freedom and support (Titko et al., 2020). Additionally, the lack of the contingent reward dimension in this study may have undermined the effectiveness of transactional leadership among Generation Z, a generation known to be responsive to rewards and recognition. The preservation of the status quo, a characteristic of transactional leadership, might demotivate Generation Z's innovative and continuous improvement drive.

As anticipated, there is a negative correlation ($r=-0.094$) between laissez-faire leadership and effectiveness (Robert & Vandenberghe, 2021). This leadership style has been demonstrated to decrease employees' willingness to contribute to goal achievement (Skogstad et al., 2007). The traits associated with laissez-faire leaders in Generation Z, such as low affability, openness, and responsibility, coupled with low levels of extraversion and emotional stability (as per this study), may not be well received by Generation Z, thereby affecting the subordinates' commitment to the leader.

5.5. Concluding Remarks

The primary aim of this research was to delineate the personality traits that most significantly bolster the leadership styles among individuals of Generation Z. Evidently, transformational leadership emerges as the most effective leadership style for this cohort, significantly surpassing transactional leadership. In stark contrast, laissez-faire leadership demonstrates a counterproductive impact on leadership effectiveness and should generally be avoided in Generation Z contexts.

In terms of personality traits, Openness and Conscientiousness stand out as the most influential in affecting transformational leadership. Interestingly, the study also identifies a positive correlation between Neuroticism and transformational leadership. Gaining an understanding of these personality traits is crucial for devising strategies to enhance them, thereby better preparing Generation Z leaders for the complexities of their work environment.

This knowledge could seamlessly integrate into a Bachelor of Business Administration curriculum, offering students invaluable insights into how their inherent traits might influence their future leadership roles in the corporate realm.

Our findings align with the broader literature that underscores the evolving nature of leadership and its impact on organizational dynamics (Murotmusaev et al., 2022). They also contribute to the existing literature on the relationship between personality and leadership, complementing studies such as Abid, Arya, Arshad, Ahmed and Farooqi (2021), which explored how positive personality traits influence self-leadership. While this study furnishes valuable insights, it is important to acknowledge several limitations that impact its validity and generalizability. First and foremost, the limited sample size and data collected from a single educational institution hinder the study's broader applicability to the entire Mexican Generation Z population. Beyond the issue of sample size, the study's methodology, using Structural Equation Modeling (SEM) and factor analysis, presents its own set of challenges by potentially oversimplifying complex relationships or risking model overfitting. Another significant constraint is the temporal scope of the study, which captures a snapshot of Generation Z traits and preferences at a particular point in time and may not account for shifts due to evolving societal or technological factors. The study also leans heavily on self-reported survey data, susceptible to response bias or inaccuracies stemming from social desirability. Lastly, the cultural context is limited to a Mexican educational institution, thus not accounting for variations in leadership styles and personality traits that might exist across different geographical or cultural settings.

Looking ahead, future research could focus on addressing these limitations by employing larger, more diverse samples across multiple institutions or even across different countries. Methodological enhancements and longitudinal data could offer a richer, more nuanced understanding of the evolving leadership and personality traits within the Generation Z cohort.

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References

- Abid, G., Arya, B., Arshad, A., Ahmed, S., & Farooqi, S. (2021). Positive Personality Traits and Self-Leadership in Sustainable Organizations: Mediating Influence of Thriving and Moderating Role of Proactive Personality. *Sustainable Production and Consumption*, 25, 299-311. <https://doi.org/10.1016/j.spc.2020.09.005>
- Ahmad, Z., & Yekta, Z. (2010). Relationship between perceived organizational support, leadership behavior, and job satisfaction: An empirical study in Iran. *Intangible Capital*, 6(2), 162-184. <https://doi.org/10.3926/ic.138>
- Al-Amiri, N., Daradkeh, F., & Al-Al-Kaabi, A. (2019). Leadership Styles and Competence among Generation Z Emirati Nursing Students. *International Journal of Learning Teaching and Educational Research*, 18(9), 23-45. <https://doi.org/10.7748/nm.2022.e2023>

- Andersen, J.A. (2006). Leadership, personality and effectiveness. *The Journal of Socio-Economics*, 35(6), 1078-1091. <https://doi.org/10.1016/j.socecc.2005.11.066>
- Anderson, J.C., & Gerbing, D.W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411-423. <https://doi.org/10.1037/0033-2909.103.3.411>
- Avolio, B.J., Bass, B.M., & Jung, D.I. (1999). Re-examining the components of transformational and transactional leadership using the Multifactor Leadership. *Journal of Occupational and Organizational Psychology*, 72(4), 441-462. <https://doi.org/10.1348/096317999166789>
- Avolio, B.J., & Gardner, W.L. (2005). Authentic leadership development: Getting to the root of positive forms of leadership. *The Leadership Quarterly*, 16(3), 315-338. <https://doi.org/10.1016/j.leaqua.2005.03.001>
- Ayub, U., Kanwal, F., Kausar, A.R. (2019). Developing knowledge creation capability: The role of big-five personality traits and transformational leadership. *Pakistan Journal of Commerce and Social Science*, 13(1), 30-61. Available at: <http://jespk.net/paper.php?paperid=4327> (Accessed: April 2023).
- Barrick, M.R., & Mount, M.K. (1991). The big five personality dimensions and job performance: a meta-analysis. *Personnel Psychology*, 44(1), 1-26. <https://doi.org/10.1111/j.1744-6570.1991.tb00688.x>
- Baškarada, S., Watson, J., & Cromarty, J. (2017). Balancing transactional and transformational leadership. *International Journal of Organizational Analysis*, 25(3), 506-515. <https://doi.org/10.1108/IJOA-02-2016-0978>
- Bass, B.M. (1961). Some aspects of attempted, successful, and effective leadership. *Journal of Applied Psychology*, 45(2), 120-122. <https://doi.org/10.1037/h0049166>
- Bass, B.M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.
- Bass, B.M., & Riggio, R.E. (2005). *Transformational Leadership* (2nd ed.). New York: Psychology Press. <https://doi.org/10.4324/9781410617095>
- Bass, B.M., & Avolio, B.J. (1994). Transformational leadership and organizational culture. *International Journal of Public Administration*, 112-121. <https://doi.org/10.1080/01900699408524907>
- Bass, B.M., Avolio, B.J., Jung, D.I., & Berson, Y. (2003). Predicting unit performance by assessing transformational and transactional leadership. *Journal of Applied Psychology*, 88(2), 207-218. <https://doi.org/10.1037/0021-9010.88.2.207>
- Bass, B.M., McGehee, C.R., Hawkins, W.C., Young, P.C., & Gebel, A.S. (1953). Personality variables related to leaderless group discussion behavior. *The Journal of Abnormal and Social Psychology*, 48(1), 120-128. <https://doi.org/10.1037/h0057447>
- Baumgartner, H., & Homburg, C. (1996). Applications of structural equation modeling in marketing and consumer research: A review. *International Journal of Research in Marketing*, 13(2), 139-161. [https://doi.org/10.1016/0167-8116\(95\)00038-0](https://doi.org/10.1016/0167-8116(95)00038-0)
- Bejtkovský, J. (2016). The employees of baby boomers generation, generation X, generation Y and generation Z in selected Czech corporations as conceivers of development and competitiveness in their corporation. *Journal of Competitiveness*, 8 (4), 105-123. <https://doi.org/10.7441/joc.2016.04.07>
- Bono, J.E., & Judge, T.A. (2004). Personality and transformational and transactional leadership: A metaanalysis. *Journal of Applied Psychology*, 89(5), 901-910. <https://doi.org/10.1037/0021-9010.89.5.901>
- Cabana-Villca, S.R., Rivera-Guerra, M.B., Véliz-Fernández, R.P., & Aguilera-Zambra, M.I. (2022). Influencia del liderazgo y otras variables críticas en la competitividad de Mipymes chilenas. (Spanish). *Contaduría y Administración*, 67(4), 48-71. <https://doi.org/10.22201/fca.24488410e.2022.2972>
- Cho, Y., Shin, M., Billing, T.K., & Bhagat, R.S. (2019). Transformational leadership, transactional leadership, and affective organizational commitment: a closer look at their relationships in two distinct national contexts. *Asian Business & Management*, 18, 187-210. <https://doi.org/10.1057/s41291-019-00059-1>

- Church, A.H., & Waclawski, J. (1998). The relationship between individual personality orientation and executive leadership behaviour. *Journal of Occupational and Organizational Psychology*, 71(2), 99-125. <https://doi.org/10.1111/j.2044-8325.1998.tb00666.x>
- Cogliser, C.C., Gardner, W.L., Gavin, M.B., & Broberg, J.C. (2012). Big five personality factors and leader emergence in virtual teams: Relationships with team trustworthiness, member performance contributions, and team performance. *Group & Organization Management*, 37(6), 752-784. <https://doi.org/10.1177/1059601112464266>
- Crowne, K.A. (2019). Investigating antecedents of transformational leadership in students. *Journal of International Education in Business*, 12(1), 80-94. <https://doi.org/10.1108/JIEB-07-2018-0029>
- Danti, S., & Hochman, G. (2022). Personality Characteristics as Predictors of the Leader's Ethical Leadership in Regular Times and in Times of Crisis. *Sustainability*, 14(14), 9800. <https://doi.org/10.3390/su14169800>
- De Hoogh, A.H., Den Hartog, D.N., & Koopman, P.L. (2005). Linking the Big Five-Factors of personality to charismatic and transactional leadership; perceived dynamic work environment as a moderator. *Journal of Organizational Behavior*, 26(7), 839-865. <https://doi.org/10.1002/job.344>
- Denissen, J.J.A., Geenen, R., Soto, C., John, O., & van Aken, M.V. (2019). The Big Five Inventory–2: Replication of psychometric properties in a Dutch adaptation and first evidence for the discriminant predictive validity of the facet scales. *Journal of Personality Assessment*, 101(1), 25-41. <https://doi.org/10.1080/00223891.2018.1539004>
- Do, M.H., & Minbashian, A. (2014). A meta-analytic examination of the effects of the agentic and affiliative aspects of extraversion on leadership outcomes. *Leadership Quarterly*, 25(5), 1040-1053. <https://doi.org/10.1016/j.leaqua.2014.04.004>
- Dumdum, U.R., Lowe, K.B., & Avolio, B.J. (2013). A meta-analysis of transformational and transactional leadership correlates of effectiveness and satisfaction: An update and extension. In *Transformational and charismatic leadership: The road ahead 10th anniversary edition* (39-70). Emerald Group Publishing Limited. <https://doi.org/10.1108/S1479-357120130000005008>
- Dwidienawati, D., Syahchari, D., & Tjahjana, D. (2022). Effective Leadership style for Generation Z. In *5th European International Conference on Industrial Engineering and Operations Management*, <https://doi.org/10.46254/EU05.20220183>
- Eagly, A.H., Johannesen-Schmidt, M.C., & van Engen, M.L. (2003). Transformational, transactional, and laissez-faire leadership styles: a meta-analysis comparing women and men. *Psychological Bulletin*, 129(4), 569-591. <https://doi.org/10.1037/0033-2909.129.4.569>
- Erkutlu, H. (2008). The impact of transformational leadership on organizational and leadership effectiveness: The Turkish case. *Journal of Management Development*, 27(7), 708-726. <https://doi.org/10.1108/02621710810883616>
- Furtner, M.R., & Rauthmann, J.F. (2010). Relations between self-leadership and scores on the Big Five. *Psychological Reports*, 107(2), 339-353. <https://doi.org/10.2466/02.03.14.20.PR0.107.5.339-353>
- Gabrielova, K., & Buchko, A.A. (2021). Here comes Generation Z: Millennials as managers. *Business Horizons*, 64(4), 489-499. <https://doi.org/10.1016/j.bushor.2021.02.013>
- Garcia, M., Duncan, P., Carmody-Bubb, M., & Ree, M.J. (2014). You have what? Personality! Traits that predict leadership styles for elementary principals. *Psychology*, 5(3), 204-212. <https://doi.org/10.4236/psych.2014.53031>
- Glabek, M., Skogstad, A., & Einarsen, S. (2018). Workplace bullying, the development of job insecurity and the role of laissez-faire leadership: A two-wave moderated mediation study. *Work & Stress*, 32(3), 297-312. <https://doi.org/10.1080/02678373.2018.1427815>
- Goh, E., & Lee, C. (2018). A workforce to be reckoned with: The emerging pivotal Generation Z hospitality workforce. *International Journal of Hospitality Management*, 73, 20-28. <https://doi.org/10.1016/j.ijhm.2018.01.016>

- Goodwin, V.L., Wofford, J.C., & Whittington, J.L. (2001). A theoretical and empirical extension to the transformational leadership construct. *Journal of Organizational Behavior*, 22(7), 759-774. <https://doi.org/10.1002/job.111>
- Greenleaf, R.K. (1977). *Servant leadership: A journey into the nature of legitimate power and greatness*. Paulist Press.
- Hair, J., Anderson, R., Tatham, R., & Black, W. (2010). *Multivariate Data Analysis* (7th ed.). New Jersey: Prentice Hall.
- Halama, P., Kohút, M., Soto, C., & John, O. (2020). Slovak adaptation of the Big Five Inventory (BFI-2): Psychometric properties and initial validation. *Studia Psychologica*, 62(1), 74-87. <https://doi.org/10.31577/sp.2020.01.792>
- Hassan, M.M., Bashir, S., & Abbas, S.M. (2017). The Impact of Project Managers' Personality on Project Success in NGOs: The Mediating Role of Transformational Leadership. *Project Management Journal*, 48(2), 74-87. <https://doi.org/10.1177/875697281704800206>
- Hater, J.J., & Bass, B.M. (1988). Superiors' evaluations and subordinates' perceptions of transformational and transactional leadership. *Journal of Applied Psychology*, 73(4), 695-702. <https://doi.org/10.1037/0021-9010.73.4.695>
- Hautala, T.M. (2006). The relationship between personality and transformational leadership. *Journal of Management Development*, 25(8), 777-794. <http://doi.org/10.1108/02621710610684259>
- Hinkin, T.R., & Schriesheim, C.A. (2008). A theoretical and empirical examination of the transactional and non-leadership dimensions of the Multifactor Leadership Questionnaire (MLQ). *The Leadership Quarterly*, 19(5), 501-513. <https://doi.org/10.1016/j.leaqua.2008.07.001>
- Hogg, M.A., van Knippenberg, D., & Rast III, D.E. (2012). The social identity theory of leadership: Theoretical origins, research findings, and conceptual developments. *European Review of Social Psychology*, 23(1), 258-304. <https://doi.org/10.1080/10463283.2012.741134>
- Houghton, J.D., Bonham, T.W., Neck, C.P., & Singh, K. (2004). The relationship between self-leadership and personality: A comparison of hierarchical factor structures. *Journal of Managerial Psychology*, 19(4), 427-441. <https://doi.org/10.1108/02683940410537963>
- Hu, L.T., & Bentler, P.M. (1995). Evaluating model fit. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (76-99). Thousand Oaks: Sage.
- Iacobucci, D. (2010). Structural equations modeling: Fit indices, sample size, and advanced topics. *Journal of Consumer Psychology*, 20(1), 90-98. <https://doi.org/10.1016/j.jcps.2009.09.003>
- Jiang, Y., & Chen, C. C. (2018). Integrating Knowledge Activities for Team Innovation: Effects of Transformational Leadership. *Journal of Management*, 44(5), 1819-1847. <https://doi.org/10.1177/0149206316628641>
- John, O.P., & Srivastava, S. (1999). The Big-Five trait taxonomy: History, measurement, and theoretical perspectives. In Pervin, L.A., & John, O.P. (Eds.), *Handbook of Personality: Theory and Research* (2, 102-138). New York: Guilford Press.
- John, O.P., Naumann, L.P., & Soto, C.J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In John, O.P., Robins, R.W., & Pervin, L.A. (Eds.), *Handbook of Personality: Theory and Research* (114-158). New York, NY: Guilford Press.
- Judge, T.A., & Piccolo, R.F. (2004). Transformational and transactional leadership: a meta-analytic test of their relative validity. *Journal of Applied Psychology*, 89(5), 755-768. <https://doi.org/10.1037/0021-9010.89.5.755>
- Judge, T.A., Bono, J.E. (2000). Five-factor model of personality and transformational leadership. *Journal of Applied Psychology*, 85(5), 751-765. <https://doi.org/10.1037/0021-9010.85.5.751>
- Judge, T.A., Bono, J.E., Ilies, R., & Gerhardt, M.W. (2002). Personality and leadership: a qualitative and quantitative review. *Journal of Applied Psychology*, 87(4), 765-780. <https://doi.org/10.1037/0021-9010.87.4.765>

- Kankainen, A., Taskinen, S., & Oja, H. (2004). On Mardia's Tests of Multinormality. In Hubert, M., Pison, G., Struyf, A., & van Aelst, S. (Eds.), *Theory and Applications of Recent Robust Methods. Statistics for Industry and Technology*. Birkhäuser, Basel. https://doi.org/10.1007/978-3-0348-7958-3_14
- Keskes, I. (2014). Relationship between leadership styles and dimensions of employee organizational commitment: A critical review and discussion of future directions. *Intangible Capital*, 10(1), 26-51. <https://doi.org/10.3926/ic.476>
- Kiarie, M.A.W., Maru, L.C. & Cheruiyot, T.K. (2017). Leader personality traits and employee job satisfaction in the media sector, Kenya. *The TQM Journal*, 29(1), 133-146. <https://doi.org/10.1108/TQM-09-2015-0117>
- Kim, E.J. & Park, S. (2020). Transformational leadership, knowledge sharing, organizational climate and learning: an empirical study. *Leadership & Organization Development Journal* 41(6), 761-775. <https://doi.org/10.1108/LODJ-12-2018-0455>
- Kuo, T.H., Ho, L.A., Wu, Y.J., & Lin, C.T. (2010). The factors influencing employees' attitudes in high-tech environment. *Industrial Management & Data Systems*, 110(7), 1054-1072. <https://doi.org/10.1108/02635571011069103>
- Lamm, K.W., Holder, M., Randall, N.L., Edgar, D.W., & Lamm, A.J. (2021). Agricultural Leadership Development Program Participant Personality and Demographic Characteristics: An Empirical Analysis. *SAGE Open*, 11(4), 1-20. <https://doi.org/10.1177/21582440211061577>
- Lee, Y.T., Hought, H., Chen, K., & Chan, S. (2013). Examining Daoist Big-Five leadership in cross-cultural and gender perspectives. *Asian American Journal of Psychology*, 4(4), 267-276. <https://doi.org/10.1037/a0035180>
- Lim, B.C., & Ployhart, R.E. (2004). Transformational leadership: Relations to the five-factor model and team performance in typical and maximum contexts. *Journal of Applied Psychology*. 89(4), 610-621. <https://doi.org/10.1037/0021-9010.89.4.610>
- Lopez-Perry, C. (2020). Transformational leadership and the big five personality traits of counselor educators. *Journal of Counselor Leadership and Advocacy*, 7(2), 132-146. <https://doi.org/10.1080/2326716X.2020.1820406>
- Lowe, K.B., Kroeck, K.G., & Sivasubramaniam, N. (1996). Effectiveness correlates of transformational and transactional leadership: A meta-analytic review of the MLQ literature. *The Leadership Quarterly*, 7(3), 385-425. [https://doi.org/10.1016/S1048-9843\(96\)90027-2](https://doi.org/10.1016/S1048-9843(96)90027-2)
- Lussier, R.N., & Achua, C.F. (2016). *Liderazgo: teoría, aplicación y desarrollo de habilidades*. México, D.F.: Cengage Learning.
- Magano, J., Silva, C., Figueiredo, C., Vitória, A., Nogueira, T., & Dinis, M.A.P. (2020). Generation Z: Fitting Project Management Soft Skills Competencies—A Mixed-Method Approach. *Education Sciences*, 10(7), 1-24. <https://doi.org/10.3390/educsci10070187>
- Mammadov, S. (2022). Big Five personality traits and academic performance: A meta-analysis. *Journal of Personality*, 90(2), 222-255. <https://doi.org/10.1111/jopy.12663>
- Marsh, H.W., Balla, J.R., & McDonald, R.P. (1988). Goodness-of-fit indexes in confirmatory factor analysis: The effect of sample size. *Psychological Bulletin*, 103, 391-410.
- McCormack, L., & Mellor, D. (2002). The role of personality in leadership: An application of the five-factor model in the Australian military. *Military Psychology*, 14(3), 179-197. https://doi.org/10.1207/S15327876MP1403_1
- Muenjohn, N., & Armstrong, A. (2008). Evaluating the Structural Validity of the Multifactor Leadership Questionnaire (MLQ), Capturing the Leadership Factors of Transformational-Transactional Leadership. *Contemporary Management Research*, 4(1), 3-14. <https://doi.org/10.7903/CMR.704>
- Murotmusaev, K.B., Makhkamov, S.S., Rasulov, A.R., & Karimova, N.S. (2022). Psychology of Modern Leadership as an Important Phenomenon of Effective Management. *International Journal of Early Childhood Special Education*, 14(1), 577-584. <https://doi.org/10.9756/INT-JECSE/V14I1.221071>

- Norman, G. (2010). Likert scales, levels of measurement and the “laws” of statistics. *Advances in Health Sciences Education*, 15, 625-632. <https://doi.org/10.1007/s10459-010-9222-y>
- Phipps, S.T., & Prieto, L.C. (2011). The influence of personality factors on transformational leadership: Exploring the moderating role of political skill. *International Journal of Leadership Studies*, 6(3), 430-447. Available at: https://www.regent.edu/acad/global/publications/ijls/new/vol6iss3/7_Edited_Phipps%20Big5_pp430_447_jmDF.pdf (Accessed: March 2023).
- Puni, A., Mohammed, I., & Asamoah, E. (2018). Transformational leadership and job satisfaction: the moderating effect of contingent reward. *Leadership & Organization Development Journal*, 39(4), 522-537. <https://doi.org/10.1108/LODJ-11-2017-0358>
- Robert, V., & Vandenberghe, C. (2021). Laissez-faire leadership and affective commitment: The roles of leader-member exchange and subordinate relational self-concept. *Journal of Business and Psychology*, 36(4), 533-551. <https://doi.org/10.1007/s10869-020-09700-9>
- Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software*, 48(2), 1-36. <https://doi.org/10.18637/jss.v048.i02>
- Saad-Alessa, G. (2021). The dimensions of transformational leadership and its organizational effects in public universities in Saudi Arabia: A systematic review. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.682092>
- Sarros, J.C., & Santora, J.C. (2001). The transformational-transactional leadership model in practice. *Leadership & Organization Development Journal*, 22(8), 383-394. <https://doi.org/10.1108/01437730110410107>
- Skogstad, A., Einarsen, S., Torsheim, T., Aasland, M.S., & Hetland, H. (2007). The destructiveness of laissez-faire leadership behavior. *Journal of Occupational Health Psychology*, 12(1), 80-92. <https://doi.org/10.1037/1076-8998.12.1.80>
- Soto, C. J., John, O. P., Gosling, S. D., & Potter, J. (2008). The developmental psychometrics of big five self-reports: Acquiescence, factor structure, coherence, and differentiation from ages 10 to 20. *Journal of Personality and Social Psychology*, 94(4), 718–737. <https://doi.org/10.1037/0022-3514.94.4.718>
- Sulistiyani, E., & Rahardja, E. (2018). Examining the Effect of Transformational Leadership, Extrinsic Reward, and Knowledge Sharing on Creative Performance of Indonesian SMEs. *Quality-Access to Success*, 19(167), 63-67. Available at: https://www.researchgate.net/publication/329671411_Examining_the_effect_of_transformational_leadership_extrinsic_reward_and_knowledge_sharing_on_creative_performance_of_Indonesian_SMEs (Accessed: April 2023).
- Taggar, S., Hackew, R., & Saha, S. (1999). Leadership emergence in autonomous work teams: Antecedents and outcomes. *Personnel Psychology*, 52(4), 899-926. <https://doi.org/10.1111/j.1744-6570.1999.tb00184.x>
- Tepper, B., & Percy, P.M. (1994). Structural Validity of the Multifactor Leadership Questionnaire. *Educational and Psychological Measurement*, 54(3), 734-744. <https://doi.org/10.1177/0013164494054003020>
- Titko, J., Svirina, A., Skvarciany, V., & Shina, I. (2020). Values of young employees: Z-generation perception. *Business: Theory and Practice*, 21(1), 10-17. <https://doi.org/10.3846/btp.2020.11166>
- Uusi-Kakkuri, P., & Brandt, T. (2015). Preferred leadership behaviours by different personalities. *International Journal of Business and Globalisation*, 15(4), 461-474. <https://doi.org/10.1504/IJBG.2015.072518>
- van Dierendonck, D. (2011). Servant leadership: A review and synthesis. *Journal of Management*, 37(4), 1228-1261. <https://doi.org/10.1177/0149206310380462>
- van Eeden, R., Cilliers, F., & van Deventer, V. (2008). Leadership styles and associated personality traits: Support for the conceptualisation of transactional and transformational leadership. *South African Journal of Psychology*, 38(2), 253-267. <https://doi.org/10.1177/008124630803800201>
- Vito, G.F., Higgins, G.E., & Denney, A.S. (2014). Transactional and transformational leadership: An examination of the leadership challenge model. *Policing: An International Journal of Police Strategies & Management*, 37(4), 809-822. <https://doi.org/10.1108/PIJPSM-01-2014-0008>

- Walumbwa, F.O., Avolio, B.J., Gardner, W.L., Wernsing, T.S., & Peterson, S.J. (2008). Authentic leadership: Development and validation of a theory-based measure. *Journal of Management*, 34(1), 89-126. <https://doi.org/10.1177/0149206307308913>
- Wong, S.I., & Giessner, S.R. (2018). The thin line between empowering and laissez-faire leadership: An expectancy-match perspective. *Journal of Management*, 44(2), 757-783. <https://doi.org/10.1177/0149206315574597>
- Wu, P., van der Linden, D., Dunkel, C.S., van Vugt, M., & Han, Q. (2022). Emerging leadership and the general factor of personality (GFP): A quasi-experimental test of an evolutionary prediction. *Evolutionary Behavioral Sciences*, 16(1), 81-83. <https://doi.org/10.1037/ebs0000234>
- Yang, I. (2015). Positive effects of laissez-faire leadership: Conceptual exploration. *Journal of Management Development*, 34(10), 1246-1261. <https://doi.org/10.1108/JMD-02-2015-0016>
- Yukl, G. (1989). Managerial leadership: A review of theory and research. *Journal of management*, 15(2), 251-289. <https://doi.org/10.1177/014920638901500207>
- Zinbarg, R.E., Revelle, W., Yovel, I., & Li, W. (2005). Cronbach's Alpha, Revelle's Beta, McDonald's Omega: Their relations with each and two alternative conceptualizations of reliability. *Psychometrika*, 70, 123-133. <https://doi.org/10.1007/s11336-003-0974-7>
- Zopiatis, A., & Constanti, P. (2012). Extraversion, openness and conscientiousness: The route to transformational leadership in the hotel industry. *Leadership & Organization Development Journal*, 33(1), 86-104. <https://doi.org/10.1108/01437731211193133>
- Zurita-Ortega, F., Olmedo-Moreno, E.M., Chacón-Cuberos, R., Expósito-López, J., & Martínez-Martínez, A. (2020). Relationship between leadership and emotional intelligence in teachers in universities and other educational centres: A structural equation model. *International Journal of Environmental Research and Public Health*, 17(1), 293. <https://doi.org/10.3390/ijerph17010293>

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